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## Storm Water Pollution Prevention Plan (SWPPP)

**AIR LIQUIDE AMERICA CORPORATION**  
**Santa Fe Springs Fill Plant**  
**Santa Fe Springs, California**

**April, 2002**

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## Table of Contents

### 1.0 INTRODUCTION

1.1 General Information.....	1
1.2 Regulatory Basis .....	2
1.3 Purpose and Objectives .....	3
1.4 Pollution Prevention Plan .....	3
1.5 Facility Identification .....	4
1.6 Storm Water Management .....	4

### 2.0 POLLUTION PREVENTION TEAM

2.1 Duties of ALAC personnel .....	5
------------------------------------	---

### 3.0 POTENTIAL POLLUTANT SOURCES

3.1 Site Plan and Drainage.....	6
3.2 Material Inventory.....	6
3.3 Spill and Leaks .....	7
3.3.1 Spill History .....	7
3.4 Sampling Data.....	7
3.5 Risk Identification and Summary of Potential Sources .....	7

### 4.0 MEASURES AND CONTROLS .....

4.1 Best Management Practices - General.....	9
4.2 Nonstructural Controls.....	9
4.2.1 Good Housekeeping Practices .....	9
4.2.2 Operations and Maintenance.....	9
4.2.3 Material Storage Practices.....	10
4.2.4 Employee Participation .....	10
4.2.5 Preventative Maintenance .....	10
4.2.5.1 Identification of Equipment to Inspect .....	10
4.2.5.2 Schedule of Routine Preventative Maintenance Inspections ..	11
4.2.5.3 Equipment Repair or Replacement .....	11
4.2.6 Spill Prevention and Response Procedures .....	11
4.2.7 Inspections .....	12
4.2.8 Employee Training .....	12
4.3 Structural Controls.....	12
4.3.1 Sediment and Erosion Control.....	12
4.3.2 Management of Runoff.....	13
4.4 Non-Storm Water Discharges.....	13



<b>5.0 MONITORING AND REPORTING REQUIREMENTS .....</b>	<b>14</b>
5.1 Storm Water Monitoring Protocol .....	14
5.1.1 Visual Observations and Site Inspections .....	14
5.1.2 Quarterly Monitoring .....	14
5.2 Reporting.....	16
<b>6.0 CERTIFICATIONS.....</b>	<b>17</b>
6.1 Notice of Intent .....	17
6.2 SWPPP Certification.....	17
6.3 Non-Storm Water Discharges .....	17
6.4 Inspection Certification.....	17
6.5 Comprehensive Site Compliance Evaluation Certification .....	17
<b>7.0 PLAN AVAILABILITY.....</b>	<b>19</b>
<b>8.0 CERTIFICATION.....</b>	<b>20</b>
<b>9.0 AUTHORIZED REPRESENTATIVE DELEGATION.....</b>	<b>21</b>

## List of Appendices

### Appendix A Figures

DICE 00869

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<b>Appendix B</b>	<b>Pollution Prevention Team Member Roster</b>
<b>Appendix C</b>	<b>Spill Response Notification Form</b>
<b>Appendix D</b>	<b>Significant Material List &amp; MSDSs</b>
<b>Appendix E</b>	<b>Spill History</b>
<b>Appendix F</b>	<b>Inspection Forms</b>
<b>Appendix G</b>	<b>Potential Storm Water Pollutants</b>
<b>Appendix H</b>	<b>SWPPP Revision Log</b>
<b>Appendix I</b>	<b>Certification of Non-Storm Water Discharges</b>
<b>Appendix J</b>	<b>Discharge Monitory Reports</b>
<b>Appendix K</b>	<b>Completed Training Records</b>
<b>Appendix L</b>	<b>Completed Inspections</b>
<b>Appendix M</b>	<b>Notice of Intent</b>
<b>Appendix N</b>	<b>Stormwater Permit</b>
<b>Appendix O</b>	<b>Endangered Species</b>

**DICE 00870**

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## 1.0 INTRODUCTION

### 1.1 General Information

Operator Name: Air Liquide America Corp.

Physical Address: 8832 Dice Rd  
Santa Fe Springs, CA 90670

Mailing Address: 8832 Dice Rd  
Santa Fe Springs, CA 90670

Telephone: 562-945-1383  
Facsimile: 562-693-1156

Latitude: 33° 57' 35" N  
Longitude: 118° 3' 56" W

Owner Name: Air Liquide America Corp.  
P.O. Box 3047  
Houston, Texas 77253

Authorized Signatory: FOIA ex 6, Personal Privacy  
Plant Manager  
562-693-1156

#### Primary Contact/

Authorized Representative: 1) FOIA ex 6, Personal Privacy  
Title: Plant Engineer  
Work Phone: 562-464-5241  
Mobile Phone: FOIA ex 6, Personal Privacy  
~~Home Phone:~~

DICE 00871

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Type of Business: Industrial gas cylinder filling and bulk material handling for industrial customers.

Standard Industrial Classification Code: 2813

Operating Schedule: Day and Swing Shift, 5 days/week

Receiving Streams for Storm Water: Sorenson Avenue Creek

CA State Water Resources Board Permit Number: CAS000001

**Note: This plan is to be updated every time there is a personnel or contact change that will materially affect the Plan and recorded in Appendix H.**

## 1.2 Regulatory Considerations

Storm water runoff, a natural component of the hydrologic cycle, has increasingly been identified as a significant source of surface water pollution. Human activities, industrial operations and other developments can alter the natural drainage patterns and introduce pollutants to storm water that eventually enter streams, rivers, lakes, wetlands, and coastal waters.

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Multi-Sector Storm Water Permitting Program (MSGP) under the provisions of the Federal Clean Water Act. This SWPPP has been developed in accordance with the Code of Federal Regulations outlining Storm Water discharges from industrial activity, 40 CFR 122.26(b)(14).

The facility is required to conduct monthly visual inspections and two analytical samples during the wet season annually of potential pollutant sources in accordance to ~~Sector C of the NPDES MSGP.~~ *State of California Water Resource Board*

The U.S. EPA and California requires certification under the NPDES MSGP for compliance with the Endangered Species Act and the National Historic Preservation Act as shown in the Notice of intent (NOI). The following endangered species are located in Los Angeles County:

- El Segundo Blue Butterfly
- Palos Verdes Blue Butterfly
- Mohave Tui Chub

**DICE 00872**

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- Southern Steelhead
  - Tidewater Goby
  - Unarmored Threespine Stickleback
  - Arroyo Toad
  - California Condor
  - California Least Tern
  - Least Bell's Vireo
  - San Clemente Loggerhead Shrike
  - Pacific Pocket Mouse

The ALAC Santa Fe Springs Plant has implemented Best Management Practices to prevent any adverse affect on the endangered species listed above (see Section 4.0 of this Plan).

Discharges of storm water from the ALAC Santa Fe Springs Plant and the implementation of BMP's to control storm water runoff are not likely and will not likely have an adverse affect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act. Because of this, the ALAC Santa Fe Springs Plant is in compliance with the National Historic Preservation Act.

### **1.3 Purpose and Objectives**

The purpose of this SWPPP is to provide a guidance document for ALAC Santa Fe Springs Plant personnel for the interpretation of certain storm water management practices that will prevent and/or minimize pollution releases through storm water runoff at the facility. The EPA/State NPDES MGSP requires the development of a SWPPP for each facility covered by the permit, including the following provisions:

- (1) the SWPPP must be prepared in accordance with good engineering practices;
- (2) the SWPPP must identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity;
- (3) the SWPPP must describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity; and
- (4) the SWPPP must assure compliance with the terms and conditions of the NPDES MGSP.

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## 1.4 Pollution Prevention Plan

This SWPPP provides guidance for ALAC Santa Fe Springs Plant personnel to implement, monitor and maintain storm water runoff control systems for minimization of polluted storm water discharges from ALAC Santa Fe Springs Plant. ~~Consistent with the Sector C of the NPDES MSGP,~~ the SWPPP is organized in the following manner.

- Section 1.0 provides general information of the ALAC Santa Fe Springs Plant.
- Section 2.0 identifies the ALAC Santa Fe Springs Plant personnel responsible for the implementation and maintenance of the SWPPP and describes their duties and responsibilities.
- Section 3.0 provides the description of potential pollutant sources including site maps, inventory of significant exposed raw materials, past spills and leaks, existing monitoring data, and risk identification and summary of potential pollutant sources.
- Section 4.0 identifies and presents details of the measures and controls (e.g., Best Management Practices (BMPs) that are selected for implementation at the facility in order to manage and control storm water discharges, runoff management, sediment and erosion control, non-storm water discharges.
- Section 5.0 discusses the monitoring and reporting requirements.
- Section 6.0 presents guidance for evaluating the certification of the SWPPP and inspecting the ALAC Santa Fe Springs Plant for accuracy with the SWPPP.
- Section 7.0 provides the availability of the SWPPP.
- Section 8.0 presents the certification (signature) of the SWPPP.
- Section 9.0 presents ALAC Santa Fe Springs Plant personnel who are authorized to certify monitoring and/or inspection reports.

## 1.5 Facility Identification

The Santa Fe Springs Plant is located in Los Angeles County in the state of California at the intersection of Slauson and Dice Rd (See Figure 1, Site Location Map).

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## 1.6 Storm Water Management

The facility has a buried storm drainage system that conveys storm water to the City of Santa Fe Springs drainage ditch. Storm water is collected in two catch basins by the acetylene building and conveyed by subsurface pipes to the storm water outfall south of the site. Storm water is transported by open ditch and discharged into Sorenson Avenue Creek, less than one-quarter mile away. Despite the preventative and contingency measures implemented at the Santa Fe Springs Facility, chemicals used at the facility have the potential to be release to the storm drainage system. The Sanat fe springs facility has developed and implemented specific procedures and practices that significantly reduce the possibility of these potential pollutants to be present in storm water runoff in significant quantities. These practices include detailed standard operating procedures, monthly inspections, and absorbent socks known as “pigs” around potentially leaking equipment.

## 2.0 POLLUTION PREVENTION TEAM

Members of the Pollution Prevention Team (PPT) along with their responsibilities are provided in Appendix B. The PPT consists of key personnel who are familiar with the facility and its operation, and who provide adequate structure to ALAC’s environmental management program.

The responsibilities of the PPT include the following:

- Coordinating plan development, implementation, and revisions;
- Ensure that the SWPPP complies with the permit conditions that apply to the plant and that the Plan accurately represents plant features and operations;
- Implementing all SWPPP requirements;
- Defining and agreeing upon appropriate goals for the facility’s storm water management program;
- Identification of pollutants and contaminant sources;
- Being aware of any changes in ALAC;
- Providing on-site personnel training for
  - Storm Water Management
  - Storm Water Monitoring
- Coordinating and performing site inspections and monitoring requirements;
- Certifies discharge monitoring Reports;
- Recordkeeping and documenting procedures;

**DICE 00875**

- Annual updates to Plan and/or more frequent as required;
- Implementing preventative maintenance and good housekeeping programs;
- Implementation of Best Management Practices (BMPs) and corrective actions; and

## **2.1 Duties of ALAC Personnel**

The **Plant Manager** will have overall responsibility for the management of storm water and spill response development at the facility. This individual is responsible for overseeing the development, implementation, maintenance, and revision of this SWPPP. The Plant Manager is also responsible for assigning individuals to the Pollution Prevention Team along with reviewing responsibilities with each member.

The **Pollution Prevention Team Members** will be responsible for carrying out the duties of the plan as assigned by the plant manager and listed in Appendix B.

## **3.0 POTENTIAL POLLUTANT SOURCES**

### **3.1 Site Plan and Drainage**

The Air Liquide facility consists of 4 main buildings: Cylinder Fill Building, Maintenance Garage, Acetylene Building, and Office Building.

Facility drainage patterns are shown on the attached site plan, Appendix A. The flow patterns are dictated by the presence of surface materials (asphalt, concrete, gravel, silt, etc) drainage ditches and surface topography. Approximately 100% of the site is paved with concrete or asphalt.

### **3.2 Material Inventory**

For purposes of the SWPPP, the “significant materials” are defined as those substances related to industrial activities such as process chemicals, raw materials, fuels, pesticides, and fertilizers. Significant materials exposed to storm water runoff may be a source of pollution and can be carried to a receiving stream with the storm water flow. Therefore, identification of the significant materials helps to determine where a potential for contamination exists, and this identification process is the first step in identifying appropriate BMPs for implementation of an effective SWPPP.

This list also includes any materials listed under EPCRA section 313 and for which the facility is required to file an annual Form R and TRI forms. Also if a release occurs of one of these



materials in an amount that exceeds the listed Reportable Quantity (RQ), the facility is obligated to report this incident to local, state, and federal authorities as described in section 5.0 and recorded in Appendix C.

The Significant Material List and Material Data Safety Sheets (MSDS) for the above listed materials are available in Appendix D.

### **3.3 Spills and Leaks**

#### **3.3.1 Spill History**

For various reasons, incidental spills and releases may have occurred from the facility. Documentation of spills and releases that have exceeded the EPA defined "Reportable Quantity" or have resulted in a visible sheen of oil upon a waterway, are included in Appendix E. The date of the earliest recorded reportable release incident at this facility is N/A. A record of spills and releases, or the annual entry documenting no releases, will remain a part of the Plan for a period of five years.

The nearest navigable water body that would be impacted by a spill from this facility is more than ¼ mile away. Storm water discharge is fed to the Sorenson Avenue Creek.

### **3.4 Sampling Data**

The ALAC Santa Fe Springs Plant is required to sample stormwater twice during the wet season for the following parameters:

- Total suspended solids
- pH
- Specific Conductance
- Total Organic Carbon

Monitoring is required annually. Copies of all monitoring reports are located in Appendix J.

### **3.5 Risk Identification and Summary of Potential Sources**

The section briefly discusses the potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activities performed at the site or that may result in the discharge of pollutants due to non-storm water flows during dry weather conditions.

Potential sources of storm water contamination at the ALAC Santa Fe Springs Plant include, but are not limited to loading, unloading, and transferring of fuel, oil, and hazardous chemicals, outdoor storage of fuel in an AST; outdoor manufacturing/processing activities; and deterioration of motorized machinery.

The following describes potential spill sources that may have a potential to have an impact on the storm water:

- **Material Management and Storage Areas:**

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14 above ground storage tanks (AST) and 0 underground storage tanks (UST); and 220 gallons of containerized storage. A list of these materials is noted in Appendix D of this plan. Inspections of these units are performed as described in section 6.0 of this plan.

- **Operating Equipment with lubricants:**

Operating equipment at the facility that contains lubricants consists of compressors, vacuums, and pumps. Daily visual inspections of operating and facility housekeeping are performed by shift supervisor as described in section 10. Storm water drainage from operational equipment areas may have the potential for oil contamination. This facility is equipped with an oil water separator to prevent contamination of storm water from these areas.

- **Loading, Unloading, and Transfer of Chemicals and/or Fuel:**

Loading/unloading procedures meet the minimum requirements and regulations of the Department of Transportation (49 CFR Parts 171, 173, 174, 177, and 179).

The regulations under 40 CFR 112.7(4)(ii) state that a containment system will be designed to hold at least the maximum capacity of any single compartment of a tank car or truck loaded or unloaded at the facility. If a containment system is not implemented for a particular tank, at a minimum a monitoring program is implemented during filling of the tanks. This program will consist of one facility person at the tank during filling by the fuel contractor to ensure that fuel is not spilled during the transfer operation and that the tank is secure after the operation.

In addition, during transfer operations for the facility equipment, the equipment operator will not leave the filling area during the transfer process. Warning signs will be posted in the tank area to inform operators to complete disconnecting of hoses and transfer lines before departing the area. Upon completion of the transfer operations, the facility personnel and the operator of the equipment are responsible for tightening outlets to prevent liquid leakage during transit.

- **Outside Manufacturing or Processing Activities:** The largest building onsite is the Cylinder Fill building, where industrial gases are packaged into gas cylinders. Within this building, cylinders are repainted near the shipping/receiving area, if required. Waste generated from this process are stored in 55 gallon drums and removed by a certified vendor. Plant Air and Helium Compressors are located on the West side of the building. Absorbent socks (Pigs) are placed around the equipment to prevent oil/contaminants from entering the storm water drain. "Kitty Litter," absorbent pads and "Pigs" are used to clean up spills and accidental releases.

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## **4.0 MEASURES AND CONTROLS**

### **4.1 Best Management Practices - General**

BMPs are the most appropriate measures or practices used to prevent or mitigate storm water pollution from any type of onsite activity. The purpose of the BMPs is to keep the pollutants out of the storm water runoff by reducing material exposure, directing the storm water away from contaminated areas, or reducing the volume of potentially polluting materials on the sites.

This section identifies, evaluates and presents a set of BMPs that are required to be implemented at the ALAC Plant to satisfy the requirements of the SWPPP. Baseline BMPs are general practices or standard operating procedures that are inexpensive, relatively simple, and applicable to wide variety of industrial activities. Industrial facilities are required to implement the baseline BMPs, where appropriate.

### **4.2 Nonstructural Controls**

#### **4.2.1 Good Housekeeping Practices**

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Good housekeeping practices are common sense and very straightforward. Good housekeeping is the practice of maintaining a clean and orderly work environment. There are several simple procedures for achieving good housekeeping, including regular cleanup schedules, prompt and thorough removal of small spills that may occur, improved operation and maintenance, modified

material storage practices, improved material inventory control, and routine garbage and rubbish pickup and disposal. In addition, maintaining organized work areas and providing simple training programs to make employees aware of implemented BMPs will help achieve SWPPP goals.

The following good housekeeping methods have been developed for implementation at the ALAC Santa Fe Springs Plant.

#### **4.2.2 Operation and Maintenance**

These practices ensure the processes and equipment are working well.

- Maintain dry and clean floors and ground surfaces
- Pickup and dispose of trash, garbage, and other waste material on a regular basis.
- Ensure that all equipment is working properly
- Perform routine inspections for leaks or conditions that could lead to discharges of oil, chemicals, or waste products,
- Take immediate action to clean up spills and leaks from the handling and storage areas exposed to storm water,
- Provide proper BMP training to employees working with these materials and substances for implementation of good, sound housekeeping practices.

#### **4.2.3 Material Storage Practices**

Improper storage can result in the release of materials and chemicals that can effect the storm water. The following provides a list of the BMPs for material storage areas at the plant.

- Adequate aisle space will be provided to facilitate material transfer and easy access for inspections,
- Drums and other containers will be stored away from direct traffic routes to prevent accidental spills and releases,
- Drums and containers will be managed in accordance with manufacture's instructions to avoid damaging the containers from improper weight distribution,
- Drums and containers will be stored upon an impervious surface. At no time will any drum or container be stored directly in contact with the ground, and
- Hazardous material inventories will be maintained by appropriate Pollution Prevention Team Member who is trained to handle hazardous waste.

#### **4.2.4 Employee Participation**

Frequent and proper training of employees in good housekeeping practices reduces the possibility that chemicals or equipment will be mishandled. Motivating employees to reduced waste generation is an important pollution prevention technique.

#### **4.2.5 Preventive Maintenance**

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*may want to replace account*

A preventive maintenance program is a means of preventing potential release situations before they occur. It involves regular inspection, testing of plant equipment and operational systems, and timely equipment repair and replacement of worn parts before a system fails.

#### 4.2.5.1 Identification of Equipment to Inspect

The following systems or equipment have the potential to malfunction and cause a spill, leak or release of materials.

- Tanks, tanks supports, and tank drains
- All aboveground piping
- Valves and valve fittings on all equipment
- All pumps and hose connections
- All equipment and process operations
- Containment structures
- Pollution control equipment (e.g. concrete sump, oil/water separator and sand trap)
- Concrete pads and associated drain inlets
- Non-vegetative areas

#### 4.2.5.2 Schedule of Routine Preventative Maintenance Inspections

*Is this documented?*

Regular visual inspections of the equipment identified above will be conducted. The equipment will be inspected for leaks, spills, corrosions, or other forms of deterioration or conditions that could cause breakdown or failure.

The essential preventive maintenance operations include:

- Appropriate adjustment, repair, or replacement of parts.
- Inspecting all machinery and equipment with emphasis on preventing non-storm water releases by locating and correcting any deficiencies that may result in a potential release.
- Performing routine inspections of tank foundations connections, coatings, tank walls, and the piping system, including noting such warning signs as corrosion, leaks straining of tank supports, cracks, and bulges, and reporting and correcting any deficiencies.

#### 4.2.5.3 Equipment Repair or Replacement

*Take out any that does not apply*

Defective equipment will be promptly repaired or replaced.

#### 4.2.6 Spill Prevention and Response Procedures

Spills and leaks can be the largest potential source of storm water pollutants at the facility. Spill potential depends on how materials are handled, the types and volumes of materials handled,

DICE 00881

and how materials are stored. These areas where potential spills can occur were described in section 3.0 of this Plan.

Specific material handling procedures and storage requirements that are used at the plant to reduce the potential for spills include:

- Maintaining effective housekeeping practices
- Performing regular visual inspections to identify potential spill situations,
- Performing required plant preventive maintenance operations,
- Using proper filling procedures for tanks and other equipment,
- Using proper material transfer procedures including use of secondary containment, and
- Providing training for all employees in proper spill prevention and response techniques.

Spill response equipment is located in the paint storage shed. Brooms are located in the maintenance garage. The spill response equipment consists of the following items: brooms, absorbent pads, pigs, "kitty litter." *absorbent material*

#### 4.2.7 Inspections

The facility will conduct inspections as outlined in section 5.0

#### 4.2.8 Employee Training

The NPDES MSGP for storm water discharges associated with industrial activity mandates that employee training programs must inform personnel at all levels of responsibility of the components and goals of the SWPPP. Once a year, all employees should be trained in all components and goals of the SWPPP with training records kept in Appendix K.. This training should include, but not limited to, the following:

- reviewing the objectives of the SWPPP;
- reviewing the pollution control laws and regulations;
- instructing new employees with respect to BMPs;
- reviewing BMPs with pertinent employees
- evaluating success in achieving BMPs on a regular bases; and
- assessing activities in the facility which may affect the SWPPP.

### 4.3 Structural Controls

#### 4.3.1 Sediment and Erosion Control

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Soil erosion is a natural process. However, it can be significantly accelerated by human activities which disturb the natural drainage such as construction, compacting or disturbing the soil, and covering the ground with impermeable surfaces like buildings and parking lots. The NPDES MSGP requires that all industries must identify the areas that may have a high potential

~~Keep~~  
for soil erosion. These areas include high traffic areas where vegetation cannot grow soil Stockpiles, stream banks and steep slopes, and a construction where soil is stripped of plants and subject to wind and water erosion. In addition, industrial facilities are required to take steps to limit the erosion. The Air Liquide Santa Fe Springs Plant has identified the following

Areas as having a high potential for signification soil erosion: N/A. ~~Keep~~

BMPs for soil erosion control are as follows:

- Establish vegetation on the regraded and barren ground areas as soon as possible after final grading is complete by applying permanent seeding and planting of perennial grasses;
- Use low-maintenance local grass varieties so that a good vegetation cover is established to provide erosion protection quickly under normal weather conditions;
- Provide other soil erosion control measures on steep slopes, if necessary, and
- Conduct periodic inspection of the areas to observe vegetative growth and soil erosion, implement additional measures such as reseeding and mulching, as required.

#### 4.3.2 Management of Runoff

The potential sources of storm water contamination at the ALAC Santa Fe Springs Plant were identified in section 3.0. As discussed earlier, storm water contamination is most likely to be generated by the following activities in the following areas: loading/unloading activities, storage of materials in ASTs and other containers, outdoor manufacturing/processing activities, access roads, equipment deterioration, and non-vegetated areas.

The facility has a buried storm drainage system that conveys storm water to the City of Santa Fe Springs drainage ditch. Storm water is collected in two catch basins by the acetylene building and conveyed by subsurface pipes to the storm water main south of the site. Storm water is transported by open ditch and discharged into Sorenson Avenue Creek less than one quarter mile away. Despite the preventive and contingency measures implemented at the Santa Fe Springs facility, chemicals used at the facility have the potential to be release to the storm drainage system. The Santa Fe Springs facility has developed and implemented specific procedures and practices that significantly reduce the possibility of these potential pollutants to be present in storm water runoff in significant quantities. These practices include detailed standard operating procedures, monthly inspections, and absorbent socks known as "pigs" around potentially leaking equipment.

The storm water management system is sufficient to assist in helping the facility manage storm water runoff so as to reduce the discharge of pollutants. However, if these BMPs and storm water management systems become incapable of achieving the reduction of pollutants, modifications will be made to revise this SWPPP.

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#### 4.4 Non-Storm Water Discharges

All storm water outlets are examined for the presence of non-storm water discharge. Certification of non-storm water discharges is included in Appendix I.

Acceptable non-storm water discharges include the following:

- discharges from fire-fighting activities;
- fire hydrant flushing;
- potable water sources including water line flushing;
- irrigation drainage and lawn watering;
- uncontaminated ground water and flow from springs;
- drinking fountain water;
- uncontaminated compressor condensate
- foundation or footing drains where flows are not contaminated;
- routine exterior building wash down that does not use detergents or their compounds;  
and
- air conditioning condensate.

All wastewater discharges are from potable water.

DICE 00884



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## **5.0 MONITORING AND REPORTING REQUIREMENTS**

### **5.1 Storm Water Monitoring Protocol**

Storm water pollution prevention will be accomplished at the Air Liquide Santa Fe Springs Plant through the use of site inspections, good housekeeping practices, and the implementation of other best management practices. The effectiveness of the SWPPP will be evaluated using visual storm water monitoring and grab sample collection and analysis.

#### **5.1.1 Visual Observations and Site Inspections**

As discussed in Section 4.2.3, visual observations and site inspection will be used by the members of the PPT to monitor storm water discharges from then facility for the presence of oily sheen, floating or suspended solid materials, discoloration, odor, or other physical evidence of potential pollutants.

All visual observations will be recorded on the inspection report and kept in Appendix L. All visual observations will be conducted during daylight hours only. Routine site inspections will be performed by members of the PPT to identify areas that could potentially contribute to the contamination of storm water runoff and to evaluate whether measures identified in the SWPPP to reduce pollutant loading are adequate and properly implemented in accordance with the terms of the permit.

Site inspections will focus upon the proper operation of site activities, good housekeeping practices, preventive maintenance activities, and the effectiveness of management practices. Any item requiring corrective action is identified on the report along with the corrective action taken to correct the item and bring it into compliance.

#### **5.1.2 Quarterly Monitoring**

All outfalls that discharge storm water that comes into contact with industrial activity will be monitored for the following constituents:

- Total suspended solids
- pH
- Specific Conductance
- Total Organic Carbon

Analytical Monitoring Forms are located in Appendix F. Within the first 30 minutes of a storm event that is greater than 0.1 inches in total rainfall and that occurs at least 72 hours since the previously measurable storm event, a member of the PPT will collect a grab sample from the outfall. The ALAC Santa Fe Springs Plant is required to conduct monthly visual inspections and sample analytically twice during the wet season on an annual basis. The analytical data from the sampling events will be recorded on Discharge Monitoring Reports (DMR) received from the

state. All storm water sampling will be performed during normal daytime operating hours for the safety of all sampling personnel and to maximize the effectiveness of visual observations.

In the event that a quarterly sampling event cannot be conducted as a result of adverse climatic conditions (high winds, lightning, etc.), the inspector will document the reason for not performing the sampling event and retain this document in Appendix L.

### **Pre-sample Preparation**

Prior to onset of sampling, the following procedures will be established with all facility personnel assigned to the PPT:

- All personnel will be properly trained
- Contract with certified analytical laboratory to perform all required analysis;
- Obtain prepared and preserved sample bottles from the analytical laboratory;
- Review sample preparation and shipping requirements from the laboratory;
- Obtain all necessary sampling equipment, including ice chests, buckets, marking pens, etc.;
- Label all sample bottles and shipping cases; and
- Inspect discharge locations and use precautionary procedures to prevent accidents.

### **Grab Sample Collection Procedures**

- Record the date and time that the storm event began in the Sampling Log.
- Label all sample containers properly with the following information:
  - Sample Identification Number
  - Location of Sample (Outfall #)
  - Facility Name
  - Date and time of sample collection
  - Type of sample (grab)
  - Sample preservative used (if any)

Type of analysis required

Name of the person collecting the sample

- Have a cooler filled with ice readily accessible
- Proceed to the discharge or sample location if weather permits and follow all safety precautions
- Collect the sample with the sample container from the center of the flow
- Avoid stirring up bottom sediment in the flow channel and keep the sample free of uncharacteristic floating debris
- Avoid touching the inside of the container to prevent contamination
- Keep multiple grab samples separate and clearly labeled
- Make note of the outfall number, time and date, as well as the height of the discharge in the outfall to determine accurate flow information
- Place the sample in the ice chest or cooler

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### **Post-Sample Preparation, Packaging and Shipping**

Once the samples have been collected and placed on ice, a written record of the chain-of-custody of the sample will be completed and the laboratory notified of the anticipated shipping time and date of the sample or make prior arrangements with the laboratory to pick up the sample. Chain-of-custody forms are available from the laboratory.

Wrap all glass containers in plastic bubble wrap to prevent breakage during transportation to the laboratory, and also place the chain-of-custody form in a plastic bag to prevent it from getting wet. If samples are to arrive at the lab on a weekend, special arrangement should be made with the laboratory in order for the samples to be analyzed within their holding time, which is usually 72 hours.

## **5.2 Reporting**

**Annual Discharge Monitoring Reports.** The analytical data from each sampling event must be reported to the State of California on or before July 1 on signed DMR forms. The DMRs for the facility must be submitted to the following address:

California State Water Resources Board  
Storm Water Permit Unit  
Sacramento, CA 95812-1977

**DICE 00887**

## **6.0 CERTIFICATIONS**

### **6.1 Notice of Intent**

A copy of the NOI Application for storm water discharges associated with an industrial activity is presented in Appendix M. Submission of the NOI allows the permittee to obtain coverage under the applicable storm water permit.

### **6.2 SWPPP Certification**

This SWPPP must be signed and certified by a designated company official indicating that the Plan has been prepared in accordance with the permit requirements. This certification requirement for the Plan is located in section 8.0.

### **6.3 Non-Storm Water Discharges**

The SWPPP must include a certification, signed by an authorized individual, that discharges from the site have been tested or evaluated for the presence of non-storm water discharges. The certification must describe possible significant sources of non-storm water, the results of an test/and or evaluation conducted to detect such discharges, the test method or evaluation criteria used, the dates on which tests or evaluations were performed, and the onsite drainage points directly observed during the test or evaluation.

A Non-Storm Water Discharge Assessment and Certification form (Appendix I) will be completed after each inspection, signed by the authorized individual, and inserted into Appendix I.

### **6.4 Inspection and Report Certification**

All reports, inspections, and other information required by the NPDES MSGP must be signed by a responsible corporate office or a duly authorized representative as outlined in section 9.0 of this Plan.

### **6.5 Comprehensive Site Compliance Evaluation Certification**

The MSGP requires that qualified personnel conduct site compliance evaluations at appropriate intervals specified in the SWPPP or at least once a year. Specified requirements include:

- Inspection of storm water drainage areas for evidence of pollutants entering the drainage system;
- Verification of the descriptions of potential pollutant sources; verification that the site drainage map is accurate; verification that controls specified in the SWPPP are correctly implemented;
- *Evaluation of the effectiveness of the measures to reduce pollutant loading;*

- 
- Observation of structural measures, sediment controls and other BMPs to ensure proper operation; inspect all other equipment needed in implementation of the SWPPP;
  - Revision of the plan as needed within two weeks after inspection and implement needed changes within twelve weeks; and
  - Summary of the inspection results in a short report which documents the following: date of inspection, personnel conducting the inspection, either (1) identification of incidents of noncompliance or (2) certification that the facility is in compliance with the plan, and proper signatures.
  - A member of the PPT will perform the Comprehensive Site Compliance Audit.

A certified report summarizing the scope of the inspection, personnel performing the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and response actions taken will be developed and retained as part of the SWPPP for at least 3 years following the date of the inspection.

DICE 00889

## 7.0 PLAN AVAILABILITY

The SWPPP, inspection reports, monitoring reports, and other SWPPP information will be made available upon request to ALAC employees, the EPA, California, the U.S. Fish and Wildlife Service or National Marine Fisheries Service. The SWPPP and associated records are also available to the public upon request through the permitting authority.

## **8.0 CERTIFICATION**

**DICE 00890**

This Plan has been prepared for the ALAC Santa Fe Springs Plant in accordance with the requirements as outlined in the NPDES MSGP.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gather and evaluate the information submitted. Based on the inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violations.

To the best of knowledge, the discharges covered under this permit, and the construction of BMPs to control storm water runoff, are not likely and will not likely, adversely affect any species identified under the Endangered Species Act (See Appendix O).

To the best of my knowledge, I further certify that such discharges, and construction of BMPs to control storm water runoff, do not have an affect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage due to a previous agreement under the National Historic Preservation Act.

\_\_\_\_\_  
(Signature) \_\_\_\_\_ (Date)

\_\_\_\_\_  
(Title)

## 9.0 AUTHORIZED REPRESENTATIVE DELEGATION

DICE 00891

In accordance with the provision of the permit, all routine inspection reports will be signed by the Authorized Signatory or Authorized Representative.

The following duly authorized representatives for the ALAC Santa Fe Springs Plant's industrial activities are responsible for signing all routine reports related to the NPDES MSGP:

- Aaron Tesch

I certify that I meet the requirements of the NPDES MSGP for Storm Water Discharges associated with Industrial Activities.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Title)

DICE 00892



## **APPENDIX A**

### **FIGURES**

- a. SITE LOCATION MAP**
- b. SITE DRAINAGE MAP**

**DICE 00893**

**APPENDIX B**

**POLLUTION PREVENTION TEAM ROSTER**

**POLLUTION PREVENTION TEAM**

On an annual basis, this plan in addition to the facility's storm water pollution prevention program, must be evaluated by a team made up of the following individuals:

**DICE 00894**

Name and Job Title	Team Role	Responsibilities
Aaron Tesch: Plant Manager	Team Leader	<ul style="list-style-type: none"> <li>• Overall team activities</li> <li>• Plan update and modifications</li> <li>• Training and evaluation of current plan</li> <li>• Records and reports</li> <li>• Signature authority</li> <li>• Conduct employee training</li> <li>• Submit reports</li> <li>• Implement BMPs</li> <li>• </li> <li>• </li> </ul>
Joshua Mermelstein: Plant Engineer	Team Member	<ul style="list-style-type: none"> <li>• Inspections</li> <li>• Preventative Maintenance</li> <li>• Spill Response</li> <li>• </li> </ul>
Lindolfo Clemente: Lead	Team Member	<ul style="list-style-type: none"> <li>• Inspections</li> <li>• Housekeeping</li> <li>• Materials Management</li> <li>• Spill Response</li> <li>• </li> </ul>

The team leader is responsible for ensuring that the group meets, at a minimum, of once per calendar year and that the following tasks are completed:

1. This plan is reviewed and discussed with the team and that all items are current and correct.
2. The team visually inspects the facility and completes the annual inspection form in Appendix C.
3. The team develops an action plan to correct any deficiencies or make any improvements discovered during the above exercises.
4. All documentation of the annual evaluation are retained in the facility's records.

DICE 00895

**APPENDIX C**

**SPILL RESPONSE NOTIFICATION FORM**

**SPILL RESPONSE NOTIFICATION FORM**

Name of Facility \_\_\_\_\_

Street Address \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Name/Title of Person Making Report \_\_\_\_\_

Air Liquide America Corporation

**DICE 00896**

Phone \_\_\_\_\_ FAX \_\_\_\_\_

Material Released \_\_\_\_\_  
(attach MSDS)

Form and Quantity of Material Released: \_\_\_\_\_

Material's Reportable Quantity (if known) \_\_\_\_\_

Describe Incident Including how discovered, cause and response taken, (continue on back if necessary)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date and time release discovered. \_\_\_\_\_

Date and time (appx.) release occurred \_\_\_\_\_

Name of person who discovered release: \_\_\_\_\_

Was there a fire hazard associated with release? \_\_\_\_\_

If yes, Was local fire department notified? \_\_\_\_\_

Did spilled material travel offsite or enter a water source? \_\_\_\_\_

(If spill entered water, identify the water source)

Were outside responders notified (either public or private)/list. \_\_\_\_\_

List governmental agencies contacted (federal, local, state) and person making contact

Agency/Officer Name	Date/Time Contacted	by who	case #
---------------------	---------------------	--------	--------

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

How was spilled material disposed? \_\_\_\_\_

Was any site remediation necessary? \_\_\_\_\_

What action steps are taken (or planned) to prevent any recurrence of similar incident.

Action

Completion/Target Date

_____	_____
_____	_____
_____	_____
_____	_____

DICE 00897

**APPENDIX D**  
**SIGNIFICANT MATERIAL LIST**  
**MSDSs**

**DICE 00898**



**APPENDIX E**  
**SPILL HISTORY**



**LIST OF SIGNIFICANT SPILLS/LEAKS OF  
TOXIC OR HAZARDOUS SUBSTANCES**

Complete by \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

Record below all significant spills and leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit

If none occurred in past three years, indicate no significant spills or leaks in table.

Date	Location	Material Released	Approximate Quantity of Material Released	Action Taken in Response to Spill

DICE 00901

**APPENDIX F**  
**INSPECTION FORMS**

DICE 00903

MONTHLY VISUAL INSPECTIONS				Completed by: _____	
				Title: _____	
				Date: _____	
<b>Area/Item Inspected</b>	<b>Inspection Checklist</b>				<b>Tracking Information</b>
<b>Storage Tanks</b> Items to be inspected include tank integrity, secondary containment, loading/unloading area, piping components, and potential physical hazards to tank integrity.	Tank ID	Evidence of Spill/Leak	Evidence of Potential for Spill/Leak	General Cleanliness of Area	Date of Inspection: _____ Name of Inspector: _____ Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	
<b>Inspection Results which Require Action to be Taken</b>		<b>Responsible Person</b>	<b>Date Notified (MM/DD/YY)</b>	<b>Date Resolved (MM/DD/YY)</b>	<b>Description of Action Taken</b>
<b>Area/Item Inspected</b>	<b>Inspection Checklist</b>				<b>Tracking Information</b>
<b>Containers</b> Items to be inspected include container integrity, secondary containment, and potential physical hazards to container integrity.	All Areas Inspected	Open Containers	Evidence of Spill/Leak	Evidence of Potential for Spill/Leak	Date of Inspection: _____ Name of Inspector: _____ Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
				General Cleanliness of Areas	
				<input type="checkbox"/> Poor <input type="checkbox"/> Good	
<b>Inspection Results which Require Action to be Taken</b>		<b>Responsible Person</b>	<b>Date Notified (MM/DD/YY)</b>	<b>Date Resolved (MM/DD/YY)</b>	<b>Description of Action Taken</b>

DICE 00904

MONTHLY VISUAL INSPECTIONS				Completed by: _____	
				Title: _____	
				Date: _____	
<b>Area/Item Inspected</b>	<b>Inspection Checklist</b>				<b>Tracking Information</b>
<b>Containment Areas</b> Items to be inspected include the general storage areas.	Areas	All Areas Inspected	Residue on Ground	General Cleanliness of Area	Date of Inspection: _____
	Aggregate	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	Name of Inspector: _____
	Pipe	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Inspection Results which Require Action to be Taken</b>		<b>Responsible Person</b>	<b>Date Notified (MM/DD/YY)</b>	<b>Date Resolved (MM/DD/YY)</b>	<b>Description of Action Taken</b>
<b>Area/Item Inspected</b>	<b>Inspection Checklist</b>				<b>Tracking Information</b>
<b>Transfer Areas</b> Loading or unloading areas	All Areas Inspected	Excessive Emissions	Residue on Ground	General Cleanliness of Area	Date of Inspection: _____
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	Name of Inspector: _____
					Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Inspection Results which Require Action to be Taken</b>		<b>Responsible Person</b>	<b>Date Notified (MM/DD/YY)</b>	<b>Date Resolved (MM/DD/YY)</b>	<b>Description of Action Taken</b>
<b>Area/Item Inspected</b>	<b>Inspection Checklist</b>				<b>Tracking Information</b>
<b>Site Equipment</b> Items to be inspected include all vehicles, heavy equipment, and other site equipment which use oils or fuels	All Equipment Inspected	Maintenance Records not Current	Evidence of Any Leaks	General Cleanliness of Equipment	Date of Inspection: _____
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Poor <input type="checkbox"/> Good	Name of Inspector: _____
					Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Inspection Results which Require Action to be Taken</b>		<b>Responsible Person</b>	<b>Date Notified (MM/DD/YY)</b>	<b>Date Resolved (MM/DD/YY)</b>	<b>Description of Action Taken</b>
<b>Area/Item Inspected</b>	<b>Inspection Checklist</b>				<b>Tracking Information</b>

MONTHLY VISUAL INSPECTIONS					Completed by: _____	
					Title: _____	
					Date: _____	
Outdoor Receptacles	All Receptacles Inspected <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Spill/Leak <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Potential for Spill/Leak <input type="checkbox"/> Yes <input type="checkbox"/> No	General Cleanliness of Areas <input type="checkbox"/> Poor <input type="checkbox"/> Good	Date of Inspection _____ Name of Inspector: _____ Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Inspection Results which Require Action to be Taken		Responsible Person	Date Notified (MM/DD/YY)	Date Resolved (MM/DD/YY)	Description of Action Taken	
Area/Item Inspected	Inspection Checklist				Tracking Information	
Storm Water Conveyance System	All Catch Basins, Dikes, & Ditches Inspected <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Contamination <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Obstructions <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Erosion <input type="checkbox"/> Yes <input type="checkbox"/> No	Date of Inspection _____ Name of Inspector: _____ Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Inspection Results which Require Action to be Taken		Responsible Person	Date Notified (MM/DD/YY)	Date Resolved (MM/DD/YY)	Description of Action Taken	
Area/Item Inspected	Inspection Checklist				Tracking Information	
Outdoor Grounds The inspection is not meant to be comprehensive	Evidence of Rutting or Erosion <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Spill/Leak <input type="checkbox"/> Yes <input type="checkbox"/> No	Evidence of Potential for Spill/Leak <input type="checkbox"/> Yes <input type="checkbox"/> No	General Cleanliness of Areas <input type="checkbox"/> Poor <input type="checkbox"/> Good	Date of Inspection _____ Name of Inspector: _____ Action Items Noted: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Inspection Results which Require Action to be Taken		Responsible Person	Date Notified (MM/DD/YY)	Date Resolved (MM/DD/YY)	Description of Action Taken	

DICE 00905

<b>QUARTERLY VISUAL MONITORING</b>	<b>Completed by:</b> _____ <b>Title:</b> _____ <b>Date:</b> _____
<b>General Information</b> (A sample should only be grabbed if storm event > 0.1 inches, last rain event > 0.1 inches occurred at least 72 hours prior, and sample is taken within 30 minutes of outfall discharge associated with storm event)	
Outfall: _____	Date of Last Storm Event: _____
Date of Examination: _____	Storm Event > 0.1 Inches: <input type="checkbox"/> Yes <input type="checkbox"/> No
Name of Examiner: _____	Storm Event Start Time: _____
Examination Area Well Lit: <input type="checkbox"/> Yes <input type="checkbox"/> No	Time of Sample Collection: _____
<b>Observations</b> (Check all that apply)	
<input type="checkbox"/> Colored water (describe) _____	<input type="checkbox"/> Suspended solids (describe) _____
<input type="checkbox"/> Odor* (describe) _____	<input type="checkbox"/> Foam
<input type="checkbox"/> Murky	<input type="checkbox"/> Oil Sheen
<input type="checkbox"/> Clear water	<input type="checkbox"/> Stains on conveyance
<input type="checkbox"/> Floating solids (describe) _____	<input type="checkbox"/> Absence of plant life surrounding conveyance
<input type="checkbox"/> Settled solids (describe) _____	<input type="checkbox"/> Notable difference in plant life surrounding conveyance
*e.g., rotten eggs, earthy, chemical, chlorine, soap, putrescence, gasoline, musty, etc.	
<b>Contamination Follow-Up</b> (Should any storm water contamination be noted, provide a discussion of probable source of contamination and any measures taken to prevent future contamination.)	

<b>QUARTERLY</b>	<b>Completed by:</b> _____ <b>Title:</b> _____
------------------	---

<b>ANALYTICAL MONITORING</b>		<b>Date:</b> _____			
<b>General Information</b>					
<p>A sample should only be grabbed if storm event &gt; 0.1 inches, last rain event &gt; 0.1 inches occurred at least 72 hours prior, and sample is taken within 30 minutes of outfall discharge associated with storm event.          Minimum sample volume collected is 100 ml.</p>					
Outfall: _____		Date of Last Storm Event: _____			
Date of Sampling: _____		Storm Event > 0.1 Inches: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Name of Sampler: _____		Storm Event Start Time _____			
Time of Sample Collection. _____		Duration since Last Storm Event (hours): _____			
Estimated/Measured Total Rainfall (inches): _____		Storm Event Duration (hours): _____			
<b>Total Volume of Discharge Sampled</b>					
The runoff coefficients method will be utilized to estimate total volume of storm water discharged during a storm event.					
$Q_T = 0.62R_T[0.9A_T - 0.4A_{UP}]$ where, $Q_T$ = total runoff volume (gal) $R_T$ = total rainfall (in) - {see previous section} $A_T$ = total area of site which drains to outfall (ft <sup>2</sup> ) $A_{UP}$ = total unpaved area at site drains to outfall (ft <sup>2</sup> )		<b>Parameter</b>	<b>Value</b>		
		$R_T$			
		$A_T$			
		$A_{UP}$			
		$Q_T$			
Note: 1 acre = 43,560 ft <sup>2</sup>					
<b>Sample Information</b>					
Please attach a copy of the Chain of Custody Form and Laboratory Results to this worksheet.					
<b>Parameter</b>	<b>Result (mg/L)</b>	<b>Monitoring Cut-Off Concentration (mg/L)</b>	<b>Result &gt; Cut-Off (Yes/No)</b>		
Aluminum		0.75			
Iron		1.0			
Nitrate plus Nitrite Nitrogen		0.68			
<b>Follow-Up</b>					
If parameter results are greater than cut-off, provide a discussion of probable cause of high concentration and any measures taken to lower concentration					
If this is the 4 <sup>th</sup> Quarter, calculate average concentration for all parameters.					
<b>Parameter</b>	<b>Quarterly Concentrations (mg/L)</b>				<b>Average Concentration (mg/L)</b>
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	
Aluminum					
Iron					
Nitrate plus Nitrite Nitrogen					

DICE 00907

**APPENDIX G**

**POTENTIAL STORM WATER POLLUTANTS**

**DICE 00908**



# POTENTIAL STORMWATER POLLUTANTS

Complete by:

Title:

Date:

List all identified storm water pollutant sources and describe existing management practices that address those sources. Also, list BMP options that can be incorporated into the plan to address remaining sources of pollutants.

Storm Water Pollutant Sources and Pollutants	Existing Management Practice	BMP Options

DICE 00909

**APPENDIX H**  
**SWPPP REVISION LOG**

**DICE 00910**

## Storm Water Pollution Prevention Plan Revision Log

Sections Modified	Description of Modification

Certification Statement.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature \_\_\_\_\_ Date: \_\_\_\_\_

DICE 00911

**APPENDIX I**  
**NON-STORM WATER DISCHARGE ASSESSMENT**  
**AND**  
**CERTIFICATION**

**DICE 00912**



**APPENDIX J**

**DISCHARGE MONITORING REPORTS**

**DICE 00914**

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**APPENDIX K**  
**COMPLETED TRAINING RECORDS**

**DICE 00915**

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**APPENDIX L**  
**COMPLETED INSPECTIONS**

**DICE 00916**



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**APPENDIX M**  
**NOTICE OF INTENT**

**DICE 00917**

**APPENDIX N**  
**STORMWATER PERMIT**

**DICE 00918**

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**APPENDIX O**  
**ENDANGERED SPECIES**

**DICE 00919**

State of California  
STATE WATER RESOURCES CONTROL BOARD

1999-2000  
1998-1999

## ANNUAL REPORT

FOR

STORM WATER DISCHARGES ASSOCIATED  
WITH INDUSTRIAL ACTIVITIES

Submitted 6/30/00  
by

FOIA ex 6, Personal  
Privacy

Reporting Period July 1, 1998 through June 30, 1999  
1999 2000

An annual report is required to be submitted to your local Regional Water Quality Control Board (Regional Board) by July 1 of each year. This document must be certified and signed, under penalty of perjury, by the appropriate official of your company. Many of the Annual Report questions require an explanation. Please provide explanations on a separate sheet as an attachment. **Retain a copy of the completed Annual Report for your records.**

If any information contained in Items A, B, and C below is incorrect, please cross out or highlight the incorrect information (do not white out or erase) and provide the correct information next to or above the incorrect information.

If you have any questions, please contact your Regional Board Storm Water Program Contact. The address of the Regional Board (where the Annual Report must be filed) along with the name and telephone number of the contact is indicated below.

## REGIONAL BOARD INFORMATION:

LOS ANGELES REGIONAL WATER BOARD  
101 CENTRE PLAZA DR.  
MONTEREY PARK, CA 91754-2156

DAN RADULESCU  
(323) 266-7630

## GENERAL INFORMATION

## A. Facility WDID No:

4 19S000389

## B. Facility Operator Information:

Contact Person:

FOIA ex 6, Personal Privacy

~~LIQUID AIR CORPORATION~~ AIR LIQUIDE AMERICA CORP.  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670

## C. Facility Information:

Contact Person:

FOIA ex 6, Personal Privacy

~~LIQUID AIR CORPORATION~~ AIR LIQUIDE AMERICA CORP.  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670

SIC Code(s):

2813 Industrial Gases

DICE 00920

1999-2000  
**ANNUAL REPORT**

**SPECIFIC INFORMATION**

**MONITORING AND REPORTING PROGRAM**

**D. SAMPLING AND ANALYSIS EXEMPTIONS AND REDUCTIONS**

1. For the reporting period, was your facility exempt from collecting and analyzing samples from **two storm events** in accordance with sections B.12 or 15 of the General Permit?

☐ YES Go to Item D.2

☒ NO Go to Section E

2. Indicate the reason your facility is exempt from collecting and analyzing samples from **two storm events**. Attach a copy of the first page of the appropriate certification if you check boxes ii, iii, iv, or v.

i. ☐ Participating in an Approved Group Monitoring Plan

Group Name: \_\_\_\_\_

ii. ☐ Submitted No Exposure Certification (NEC)

Date Submitted: \_\_\_\_/\_\_\_\_/\_\_\_\_

Re-evaluation Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Does facility continue to satisfy NEC conditions?

☐ YES

☐ NO

iii. ☐ Submitted Sampling Reduction Certification (SRC)

Date Submitted: \_\_\_\_/\_\_\_\_/\_\_\_\_

Re-evaluation Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Does facility continue to satisfy SRC conditions?

☐ YES

☐ NO

iv. ☐ Received Regional Board Certification

Certification Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

v. ☐ Received Local Agency Certification

Certification Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

3. If you checked boxes i or iii above, were you scheduled to sample one storm event during the reporting year?

☐ YES Go to Section E

☐ NO Go to Section F

4. If you checked boxes ii, iv, or v, go to Section F.

**E. SAMPLING AND ANALYSIS RESULTS**

1. How many storm events did you sample? 1

If less than 2, attach explanation (if you checked item D.2.i or iii. above, only attach explanation if you answer "0").

2. Did you collect storm water samples from the first storm of the wet season that produced a discharge during scheduled facility operating hours? (Section B.5 of the General Permit)

☒ YES

☐ NO Attach explanation

3. How many storm water discharge locations are at your facility? 1

4. For each storm event sampled, did you collect and analyze a sample from each of the facility's storm water discharge locations? ☒ YES, go to Item E.6 ☐ NO
5. Was sample collection or analysis reduced in accordance with Section B.7 d of the General Permit? ☐ YES ☐ NO, attach explanation
- If "YES", attach documentation supporting your determination that two or more drainage areas are substantially identical.
- Date facility's drainage areas were last evaluated      /      /
6. Were all samples collected during the first hour of discharge? ☒ YES ☐ NO, attach explanation
7. Was all storm water sampling preceded by three (3) working days without a storm water discharge? ☒ YES ☐ NO, attach explanation
8. Were there any discharges of stormwater that had been temporarily stored or contained? (such as from a pond) ☐ YES ☒ NO, go to Item E.10
9. Did you collect and analyze samples of temporarily stored or contained storm water discharges from two storm events? (or one storm event if you checked item D.2.i or iii. above) ☐ YES ☐ NO, attach explanation
10. Section B.5. of the General Permit requires you to analyze storm water samples for pH, Total Suspended Solids (TSS), Specific Conductance (SC), Total Organic Carbon (TOC) or Oil and Grease (O&G), other pollutants likely to be present in storm water discharges in significant quantities, and analytical parameters listed in Table D of the General Permit.
- a. Does Table D contain any additional parameters related to your facility's SIC code(s)? ☒ YES ☒ NO, Go to Item E.11
- b. Did you analyze all storm water samples for the applicable parameters listed in Table D? ☐ YES ☒ NO
- c. If you did not analyze all storm water samples for the applicable Table D parameters, check one of the following reasons:
- ☐ In prior sampling years, the parameter(s) have not been detected in significant quantities from two consecutive sampling events. **Attach explanation**
- ☐ The parameter(s) is not likely to be present in storm water discharges and authorized non-storm water discharges in significant quantities based upon the facility operator's evaluation. **Attach explanation**
- ☒ Other. **Attach explanation**
11. For each storm event sampled, attach a copy of the laboratory analytical reports and report the sampling and analysis results using Form 1 or its equivalent. The following must be provided for each sample collected:
- Date and time of sample collection
  - Name and title of sampler.
  - Parameters tested.
  - Name of analytical testing laboratory.
  - Discharge location identification.
  - Testing results.
  - Test methods used.
  - Test detection limits.
  - Date of testing.
  - Copies of the laboratory analytical results.

F. QUARTERLY VISUAL OBSERVATIONS

1. **Authorized Non-Storm Water Discharges**

Section B.3.b of the General Permit requires quarterly visual observations of all authorized non-storm water discharges and their sources.

- a. Do authorized non-storm water discharges occur at your facility?

☐

YES

☒

NO

Go to Item F.2

- b. Indicate whether you visually observed all authorized non-storm water discharges and their sources during the quarters when they were discharged. Attach an explanation for any "NO" answers. Indicate "N/A" for quarters without any authorized non-storm water discharges.

July -September

☐

YES

☐

NO

N/A

October-December

☐

YES

☐

NO

N/A

January-March

☐

YES

☐

NO

N/A

April-June

☐

YES

☐

NO

N/A

- c. Use Form 2 to report quarterly visual observations of authorized non-storm water discharges or provide the following information

- name of each authorized non-storm water discharge
- date and time of observation
- source and location of each authorized non-storm water discharge
- characteristics of the discharge at its source and impacted drainage area/discharge location
- name, title, and signature of observer
- any new or revised BMPs necessary to reduce or prevent pollutants in authorized non-storm water discharges. Provide new or revised BMP implementation date.

2. **Unauthorized Non-Storm Water Discharges**

Section B.3 a of the General Permit requires quarterly visual observations of all drainage areas to detect the presence of unauthorized non-storm water discharges and their sources.

- a. Indicate whether you visually observed all drainage areas to detect the presence of unauthorized non-storm water discharges and their sources. Attach an explanation for any "NO" answers

July -September

☒

YES

☐

NO

October-December

☒

YES

☐

NO

January-March

☒

YES

☐

NO

April-June

☒

YES

☐

NO

- b. Based upon the quarterly visual observations, were any unauthorized non-storm water discharges detected?

☒

YES

☐

NO

Go to item F.2.d

- c. Have each of the unauthorized non-storm water discharges been eliminated or permitted?

☒

YES

☐

NO

Attach explanation

- d. Use Form 3 to report quarterly unauthorized non-storm water discharge visual observations or provide the following information.

- name of each unauthorized non-storm water discharge.
- date and time of observation
- source and location of each unauthorized non-storm water discharge.
- characteristics of the discharge at its source and impacted drainage area/discharge location.
- name, title, and signature of observer.
- any corrective actions necessary to eliminate the source of each unauthorized non-storm water discharge and to clean impacted drainage areas. Provide date unauthorized non-storm water discharge(s) was eliminated or scheduled to be eliminated.

# G. MONTHLY WET SEASON VISUAL OBSERVATIONS

Section B.4 a of the General Permit requires you to conduct monthly visual observations of storm water discharges at all storm water discharge locations during the wet season. These observations shall occur during the first hour of discharge or, in the case of temporarily stored or contained storm water, at the time of discharge.

1. Indicate below whether monthly visual observations of storm water discharges occurred at all discharge locations. Attach an explanation for any "NO" answers. Include in this explanation whether any eligible storm events occurred during scheduled facility operating hours that did not result in a storm water discharge, and provide the date, time, name and title of the person who observed that there was no storm water discharge.

	YES	NO		YES	NO
October	<input type="checkbox"/>	<input checked="" type="checkbox"/>	February	<input type="checkbox"/>	<input checked="" type="checkbox"/>
November	<input type="checkbox"/>	<input checked="" type="checkbox"/>	March	<input type="checkbox"/>	<input checked="" type="checkbox"/>
December	<input type="checkbox"/>	<input checked="" type="checkbox"/>	April	<input type="checkbox"/>	<input checked="" type="checkbox"/>
January	<input checked="" type="checkbox"/>	<input type="checkbox"/>	May	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. Report monthly wet season visual observations using Form 4 or provide the following information:

- a. date, time, and location of observation
- b. name and title of observer
- c. characteristics of the discharge (i.e., odor, color, etc.) and source of any pollutants observed.
- d. any new or revised BMPs necessary to reduce or prevent pollutants in storm water discharges. Provide new or revised BMP implementation date.

## ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION (ACSCE)

### H. ACSCE CHECKLIST

Section A.9 of the General Permit requires the facility operator to conduct one ACSCE in each reporting period (July 1- June 30). Evaluations must be conducted within 8-16 months of each other. The SWPPP and monitoring program shall be revised and implemented, as necessary, within 90 days of the evaluation. The checklist below includes the minimum steps necessary to complete a ACSCE. Indicate whether you have performed each step below. Attach an explanation for any "NO" answers.

1. Have you inspected all potential pollutant sources and industrial activities areas? ☒ YES ☐ NO

The following areas should be inspected:

- areas where spills and leaks have occurred during the last year.
- outdoor wash and rinse areas.
- process/manufacturing areas.
- loading, unloading, and transfer areas.
- waste storage/disposal areas.
- dust/particulate generating areas.
- erosion areas.
- building repair, remodeling, and construction
- material storage areas
- vehicle/equipment storage areas
- truck parking and access areas
- rooftop equipment areas
- vehicle fueling/maintenance areas
- non-storm water discharge generating areas

2. Have you reviewed your SWPPP to assure that its BMPs address existing potential pollutant sources and industrial activities areas? ☒ YES ☐ NO

3. Have you inspected the entire facility to verify that the SWPPP's site map, is up-to-date? The following site map items should be verified: ☒ YES ☐ NO

- facility boundaries
- outline of all storm water drainage areas
- areas impacted by run-on
- storm water discharges locations
- storm water collection and conveyance system
- structural control measures such as catch basins, berms, containment areas, oil/water separators, etc.



4. Have you reviewed all General Permit compliance records generated since the last annual evaluation?

☒ YES

☐ NO

The following records should be reviewed:

- quarterly authorized non-storm water discharge visual observations
- monthly storm water discharge visual observation
- records of spills/leaks and associated clean-up/response activities
- quarterly unauthorized non-storm water discharge visual observations
- Sampling and Analysis records
- preventative maintenance inspection and maintenance records

5. Have you reviewed the major elements of the SWPPP to assure compliance with the General Permit?

☒ YES

☐ NO

The following SWPPP items should be reviewed:

- pollution prevention team
- list of significant materials
- description of potential pollutant sources
- assessment of potential pollutant sources
- identification and description of the BMPs to be implemented for each potential pollutant source

6. Have you reviewed your SWPPP to assure that a) the BMPs are adequate in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges, and b) the BMPs are being implemented?

☒ YES

☐ NO

The following BMP categories should be reviewed:

- good housekeeping practices
- spill response
- employee training
- erosion control
- quality assurance
- preventative maintenance
- material handling and storage practices
- waste handling/storage
- structural BMPs

7. Has all material handling equipment and equipment needed to implement the SWPPP been inspected?

☒ YES

☐ NO

#### I. ACSCE EVALUATION REPORT

The facility operator is required to provide an evaluation report that includes:

- identification of personnel performing the evaluation
- the date(s) of the evaluation
- necessary SWPPP revisions
- schedule for implementing SWPPP revisions
- any incidents of non-compliance and the corrective actions taken.

Use Form 5 to report the results of your evaluation or develop an equivalent form.

#### J. ACSCE CERTIFICATION

The facility operator is required to certify compliance with the Industrial Activities Storm Water General Permit. To certify compliance, both the SWPPP and Monitoring Program must be up to date and be fully implemented.

Based upon your ACSCE, do you certify compliance with the Industrial Activities Storm Water General Permit?

☒ YES

☐ NO

If you answered "NO" attach an explanation to the ACSCE Evaluation Report why you are not in compliance with the Industrial Activities Storm Water General Permit.

## ATTACHMENT SUMMARY

Answer the questions below to help you determine what should be attached to this annual report. Answer NA (Not Applicable) to questions 2-4 if you are not required to provide those attachments.

1. Have you attached Forms 1,2,3,4, and 5 or their equivalent? ☒ YES (Mandatory)
2. If you conducted sampling and analysis, have you attached the laboratory analytical reports? ☒ YES ☐ NO ☐ NA
3. If you checked box II, III, IV, or V in item D.2 of this Annual Report, have you attached the first page of the appropriate certifications? ☐ YES ☐ NO ☒ NA
4. Have you attached an explanation for each "NO" answer in items E.1, E.2, E.5-E.7, E.9, E.10.c, F.1.b, F.2.a, F.2.c, G.1, H 1-H.7, or J? ☒ YES ☐ NO ☐ NA

## ANNUAL REPORT CERTIFICATION

I am duly authorized to sign reports required by the INDUSTRIAL ACTIVITIES STORM WATER GENERAL PERMIT (see Standard Provision C.9) and I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: Toby Erickson

Signature: Toby Erickson Date: 6/30/00

Title: Manager

## DESCRIPTION OF BASIC ANALYTICAL PARAMETERS

The Industrial Activities Storm Water General Permit (General Permit) requires you to analyze storm water samples for at least four parameters. These are pH, Total Suspended Solids (TSS), Specific Conductance (SC), and Total Organic Carbon (TOC). Oil and Grease (O&G) may be substituted for TOC. In addition, you must monitor for any other pollutants which you believe to be present in your storm water discharge as a result of industrial activity and analytical parameters listed in Table D of the General Permit. There are no numeric limitations for the parameters you test for.

The four parameters which the General Permit requires to be tested are considered *indicator* parameters. In other words, regardless of what type of facility you operate, these parameters are nonspecific and general enough to usually provide some indication whether pollutants are present in your storm water discharge. The following briefly explains what each of these parameters mean.

**pH** is a numeric measure of the hydrogen-ion concentration. The neutral, or acceptable, range is within 6.5 to 8.5. At values less than 6.5, the water is considered acidic, above 8.5 it is considered alkaline or basic. An example of an acidic substance is vinegar, and a alkaline or basic substance is liquid antacid. Pure rainfall tends to have a pH of a little less than 7. There may be sources of materials or industrial activities which could increase or decrease the pH of your storm water discharge. If the pH levels of your storm water discharge are high or low, you should conduct a thorough evaluation of all potential pollutant sources at your site.

**Total Suspended Solids (TSS)** is a measure of the undissolved solids that are present in your storm water discharge. Sources of TSS include sediment from erosion of exposed land, and dirt from impervious (i.e. paved) areas. Sediment by itself can be very toxic to aquatic life because it covers feeding and breeding grounds, and can smother organisms living on the bottom of a water body. Toxic chemicals and other pollutants also adhere to sediment particles. This provides a medium by which toxic or other pollutants end up in our water ways and ultimately in human and aquatic life. TSS levels vary in runoff from undisturbed land. It has been shown that TSS levels increase significantly due to land development.

**Specific Conductance (SC)** is a numerical expression of the ability of the water to carry an electric current. SC can be used to assess the degree of mineralization, salinity, or estimate the total dissolved solids concentration of a water sample. Because of air pollution, most rain water has a SC a little above zero. A high SC could affect the usability of waters for drinking, irrigation, and other commercial or industrial use.

**Total Organic Carbon (TOC)** is a measure of the total organic matter present in water. (All organic matter contains carbon). This test is sensitive and able to detect small concentrations of organic matter. Organic matter is naturally occurring in animals, plants, and man. Organic matter may also be man made (so called synthetic organics). Synthetic organics include pesticides, fuels, solvents, and paints. Natural organic matter utilizes the oxygen in a receiving water to biodegrade. Too much organic matter could place a significant oxygen demand on the water, and possibly impact its quality. Synthetic organics either do not biodegrade or biodegrade very slowly. Synthetic organics are a source of toxic chemicals that can have adverse affects at very low concentrations. Some of these chemicals bioaccumulate in aquatic life. If your levels of TOC are high, you should evaluate all sources of natural or synthetic organics you may use at your site.

**Oil and Grease (O&G)** is a measure of the amount of oil and grease present in your storm water discharge. At very low concentrations, O&G can cause a sheen (that floating "rainbow") on the surface of water (1 qt. of oil can pollute 250,000 gallons of water). O&G can adversely affect aquatic life and create unsightly floating material and film on water, thus making it undrinkable. Sources of O&G include maintenance shops, vehicles, machines and roadways.

If you have any questions regarding whether or not your constituent concentrations are too high, please contact your local Regional Board office. The United States Environmental Protection Agency (USEPA) has published stormwater discharge benchmarks for a number of parameters. These benchmarks may be helpful when evaluating whether additional BMPs are appropriate. These benchmarks can be accessed at our website at <http://www.swrcb.ca.gov>. It is contained in the Sampling and Analysis Reduction Certification.

1999-2000  
ANNUAL REPORT

SIDE A

FORM 5-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION  
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

EVALUATION DATE: 6/26/00 INSPECTOR NAME: LINDOLFO CLEMENTE TITLE: PRODUCTION LEAD SIGNATURE: [Signature]

<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p> <p>SHIPPING AND RECEIVING AREA</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED?</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP Implementation</p>	<p>Describe additional/revised BMPs or corrective actions and their date(s) of implementation</p>
<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p> <p>ACETYLENE GENERATION AREA</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED?</p> <p><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP Implementation</p> <p>Acetylene Plant has been closed. No lime handled or stored.</p>	<p>Describe additional/revised BMPs or corrective actions and their date(s) of implementation</p>
<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP Implementation</p>	<p>Describe additional/revised BMPs or corrective actions and their date(s) of implementation</p>
<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP Implementation</p>	<p>Describe additional/revised BMPs or corrective actions and their date(s) of implementation</p>

DICE 00928

1999-2000  
ANNUAL REPORT

SIDE B

FORM 5 (Continued)-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION  
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

EVALUATION DATE:      /      /      INSPECTOR NAME:                                      TITLE:                                      SIGNATURE:                                     

POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP Implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
	ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO			
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP Implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
	ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO			
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP Implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
	ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO			
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP Implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
	ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO			

DICE 00929

1999-2000

# ANNUAL REPORT

## FORM 4 (Continued)-MONTHLY VISUAL OBSERVATIONS OF STORM WATER DISCHARGES

SIDE A

- Storm water discharge visual observations are required for at least one storm event per month between October 1 and May 31
- Visual observations must be conducted during the first hour of discharge at all discharge locations.
- Discharges of temporarily stored or contained storm water must be observed at the time of discharge.

- Indicate "None" in the first column of this form if you did not conduct a monthly visual observation
- Make additional copies of this form as necessary.
- Until a monthly visual observation is made, record any eligible storm events that do not result in a storm water discharge and note the date, time, name, and title of who observed there was no storm water discharge.

Observation Date: February ____ 2000	Drainage Location Description	#1	#2	#3	#4
Observers Name: _____	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>NO RAIN THIS MONTH</u>	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature: _____	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Observation Date: March ____ 2000	Drainage Location Description	#1	#2	#3	#4
Observers Name: _____	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>NO DISCHARGE THIS MONTH</u>	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature: _____	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Observation Date: April ____ 2000	Drainage Location Description	#1	#2	#3	#4
Observers Name: <u>RAIN BUT NO</u>	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>STORM WATER OBSERVATION</u>	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature <u>UNOCCURRED</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Observation Date: May ____ 2000	Drainage Location Description	#1	#2	#3	#4
<u>NO RAIN IN MAY,</u>	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Observers Name: _____	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title _____	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Signature _____					

DICE 00930

1999-2000  
ANNUAL REPORT

SIDE B

FORM 4 (Continued)-MONTHLY VISUAL OBSERVATIONS OF  
STORM WATER DISCHARGES

DATE/TIME OF OBSERVATION (From Reverse Side)	DRAINAGE AREA DESCRIPTION	DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS	IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS	DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <div style="display: flex; align-items: center;"> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div> </div>	EXAMPLE: Discharge from material storage Area #2	Indicate whether storm water discharge is clear, cloudy; or discolored; causing staining, containing floating objects or an oil sheen, has odors, etc.	EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area.	
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <div style="display: flex; align-items: center;"> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div> </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <div style="display: flex; align-items: center;"> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div> </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <div style="display: flex; align-items: center;"> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div> </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <div style="display: flex; align-items: center;"> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div> </div>	DICE 00931			
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <div style="display: flex; align-items: center;"> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div> </div>				

1999-2000  
ANNUAL REPORT  
FORM 4-MONTHLY VISUAL OBSERVATIONS OF  
STORM WATER DISCHARGES

SIDE A

- Storm water discharge visual observations are required for at least one storm event per month between October 1 and May 31.
- Visual observations must be conducted during the first hour of discharge at all discharge locations.
- Discharges of temporarily stored or contained storm water must be observed at the time of discharge.
- Indicate "None" in the first column of this form if you did not conduct a monthly visual observation
- Make additional copies of this form as necessary
- Until a monthly visual observation is made, record any eligible storm events that do not result in a storm water discharge and note the date, time, name, and title of who observed there was no storm water discharge.

Observation Date: October ____ 1999 <b>NO RAIN</b> Observers Name: <u>LINDURO CLEMENTE</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	Drainage Location Description	#1	#2	#3	#4
	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Observation Date: November ____ 1999 <b>NOT ENOUGH RAIN FOR A DISCHARGE</b> Observers Name: <u>LINDURO CLEMENTE</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	Drainage Location Description	#1	#2	#3	#4
	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Observation Date: December ____ 1999 <b>NO RAIN DURING THIS MONTH</b> Observers Name: _____ Title: _____ Signature: _____	Drainage Location Description	#1	#2	#3	#4
	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
Observation Date: January <u>25</u> 2000 Observers Name: <u>LINDURO CLEMENTE</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	Drainage Location Description	#1 <u>MAN SOUTH DISCHARGE</u>	#2	#3	#4
	Observation Time	<u>8:30</u> <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Time Discharge Began	<u>7:00</u> <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

DICE 00932



1999-2000  
ANNUAL REPORT

**SIDE B**

## FORM 4-MONTHLY VISUAL OBSERVATIONS OF STORM WATER DISCHARGES

DATE/TIME OF OBSERVATION (From Reverse Side)	DRAINAGE AREA DESCRIPTION	DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS	IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS	DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION
<div style="text-align: center;">_ / _ / _</div> <div> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>	EXAMPLE: Discharge from material storage Area #2	Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining; containing floating objects or an oil sheen, has odors, etc	EXAMPLE: Oil sheen caused by oil dripped by trucks in vehicle maintenance area.	
<div style="text-align: center;">_ / _ / _</div> <div> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>				
<div style="text-align: center;">_ / _ / _</div> <div> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>				
<div style="text-align: center;">_ / _ / _</div> <div> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>				
<div style="text-align: center;">_ / _ / _</div> <div> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>	DICE 00933			
<div style="text-align: center;">_ / _ / _</div> <div> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>				

1999-2000  
ANNUAL REPORT

SIDE A

FORM 3-QUARTERLY VISUAL OBSERVATIONS OF UNAUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)

- Unauthorized NSWDS are discharges (such as wash or rinse waters) that do not meet the conditions provided in Section D (pages 5-6) of the General Permit.
- Quarterly visual observations are required to observe current and detect prior unauthorized NSWDS.
- Quarterly visual observations are required during dry weather and at all facility drainage areas.
- Each unauthorized NSWDS source, impacted drainage area, and discharge location must be identified and observed.
- Unauthorized NSWDS that can not be eliminated within 90 days of observation must be reported to the Regional Board in accordance with Section A.10.e of the General Permit.
- Make additional copies of this form as necessary.

<p>QUARTER: JULY-SEPT.</p> <p>DATE/TIME OF OBSERVATIONS  <input type="checkbox"/> AM  <u>8/3/99</u> <u>1:30</u> <input checked="" type="checkbox"/> PM         </p>	<p>Observers Name: <u>Shane Ivankovich</u></p> <p>Title: <u>Engineer</u></p> <p>Signature: <u>Shane Ivankovich</u></p>	<p>WERE UNAUTHORIZED NSWDS OBSERVED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If YES to either question, complete reverse side.</p>
<p>QUARTER: OCT.-DEC.</p> <p>DATE/TIME OF OBSERVATIONS  <input checked="" type="checkbox"/> AM  <u>12/06/99</u> <u>9:00</u> <input type="checkbox"/> PM         </p>	<p>Observers Name: <u>Karl Brusko</u></p> <p>Title: <u>Health, Safety, &amp; Environmental Specialist</u></p> <p>Signature: <u>Karl Brusko</u></p>	<p>WERE UNAUTHORIZED NSWDS OBSERVED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If YES to either question, complete reverse side.</p>
<p>QUARTER: JAN.-MARCH</p> <p>DATE/TIME OF OBSERVATIONS  <input checked="" type="checkbox"/> AM  <u>1/5/00</u> <u>10:00</u> <input type="checkbox"/> PM         </p>	<p>Observers Name: <u>LINDOLFO CLEMENTE</u></p> <p>Title: <u>PRODUCTION LEAD</u></p> <p>Signature: <u>[Signature]</u></p>	<p>WERE UNAUTHORIZED NSWDS OBSERVED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If YES to either question, complete reverse side.</p>
<p>QUARTER: APRIL-JUNE</p> <p>DATE/TIME OF OBSERVATIONS  <input checked="" type="checkbox"/> AM  <u>5/24/00</u> <u>11:30</u> <input type="checkbox"/> PM         </p>	<p>Observers Name: <u>LINDOLFO CLEMENTE</u></p> <p>Title: <u>PRODUCTION LEAD</u></p> <p>Signature: <u>[Signature]</u></p>	<p>WERE UNAUTHORIZED NSWDS OBSERVED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If YES to either question, complete reverse side.</p>

DICE 00934

1999-2000

## ANNUAL REPORT

SIDE B

FORM 3 QUARTERLY VISUAL OBSERVATIONS OF UNAUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)

OBSERVATION DATE (FROM REVERSE SIDE)	NAME OF UNAUTHORIZED NSWD  <u>EXAMPLE:</u> Vehicle Wash Water	SOURCE AND LOCATION OF UNAUTHORIZED NSWD  <u>EXAMPLE:</u> NW Corner of Parking Lot	DESCRIBE UNAUTHORIZED NSWD CHARACTERISTICS Indicate whether unauthorized NSWD is clear, cloudy, discolored, causing stains; contains floating objects or an oil sheen, has odors, etc.		DESCRIBE CORRECTIVE ACTIONS TO ELIMINATE UNAUTHORIZED NSWD AND TO CLEAN IMPACTED DRAINAGE AREAS. PROVIDE UNAUTHORIZED NSWD ELIMINATION DATE.
			AT THE UNAUTHORIZED NSWD SOURCE	AT THE UNAUTHORIZED NSWD AREA AND DISCHARGE LOCATION	
12/26/99 9:00 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	Diluted lime water from Acetylene Plant	Acetylene Plant Generator to storm water drain.	Cloudy, lime slurry and water	Cloudy, diluted lime water; light layer of lime residue	Acetylene Plant shut-down. No lime generated any more.
____/____/____  <input type="checkbox"/> AM <input type="checkbox"/> PM					
____/____/____  <input type="checkbox"/> AM <input type="checkbox"/> PM					
____/____/____  <input type="checkbox"/> AM <input type="checkbox"/> PM					

DICE 00935

1999-2000  
ANNUAL REPORT

SIDE A

FORM 2-QUARTERLY VISUAL OBSERVATIONS OF AUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)

- Quarterly dry weather visual observations are required of each authorized NSWD.
- Observe each authorized NSWD source, impacted drainage area, and discharge location.

- Authorized NSWDs must meet the conditions provided in Section D (pages 5-6), of the General Permit.
- Make additional copies of this form as necessary.

QUARTER: JULY-SEPT  DATE: 8/30/99	Observers Name: <u>SHANE IVANKOVICH</u> Title: <u>Engineer</u> Signature: <u>Shane Ivankovich</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.
QUARTER: OCT.-DEC.  DATE: 12/27/00	Observers Name: <u>LINDOLFO CLEMENTE</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.
QUARTER: JAN.-MARCH  DATE: 1/25/00	Observers Name: <u>LINDOLFO CLEMENTE</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.
QUARTER: APRIL-JUNE  DATE: 5/26/00	Observers Name: <u>LINDOLFO CLEMENTE</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.

DICE 00936

## 1999-2000

**SIDE B**

**FORM 2-QUARTERLY VISUAL OBSERVATIONS OF AUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)**

DATE / TIME OF OBSERVATION	SOURCE AND LOCATION OF AUTHORIZED NSWD  <u>EXAMPLE:</u> Air conditioner Units on Building C	NAME OF AUTHORIZED NSWD  <u>EXAMPLE:</u> Air conditioner condensate	DESCRIBE AUTHORIZED NSWD CHARACTERISTICS  Indicate whether authorized NSWD is clear, cloudy, or discolored, causing staining, contains floating objects or an oil sheen, has odors, etc.		DESCRIBE ANY REVISED OR NEW BMPs AND PROVIDE THEIR IMPLEMENTATION DATE
			At the NSWD Source	At the NSWD Drainage Area and Discharge Location	
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div>	DICE 00937				
<div style="text-align: center;">_ / _ / _</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM <input type="checkbox"/> PM         </div>					

1999-2000  
ANNUAL REPORT

SIDE A

FORM 1-SAMPLING & ANALYSIS RESULTS

FIRST STORM EVENT

- If analytical results are less than the detection limit (or non detectable), show the value as less than the numerical value of the detection limit (example: <.05)
- If you did not analyze for a required parameter, do not report "0" Instead, leave the appropriate box blank
- When analysis is done using portable analysis (such as portable pH meters, SC meters, etc.), indicate "PA" in the appropriate test method used box.
- Make additional copies of this form as necessary.

NAME OF PERSON COLLECTING SAMPLE(S): LINDOLFO CLEMENTE TITLE: PRODUCTION LEAD

SIGNATURE: 

DESCRIBE DISCHARGE LOCATION Example: NW Out Fall	DATE/TIME OF SAMPLE COLLECTION	TIME DISCHARGE STARTED	ANALYTICAL RESULTS For First Storm Event										
			BASIC PARAMETERS					OTHER PARAMETERS					
			pH	TSS	SC	O&G	TOC						
STORM WATER DRAINAGE DITCH SOUTHERN PROPERTY Boundary	1/25/00 8:30 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	7:00 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	7.06	36 mg/L	110	ND							
	___/___/___ <input type="checkbox"/> AM :___ <input type="checkbox"/> PM	___:___ <input type="checkbox"/> AM <input type="checkbox"/> PM											
	___/___/___ <input type="checkbox"/> AM :___ <input type="checkbox"/> PM	___:___ <input type="checkbox"/> AM <input type="checkbox"/> PM											
	___/___/___ <input type="checkbox"/> AM :___ <input type="checkbox"/> PM	___:___ <input type="checkbox"/> AM <input type="checkbox"/> PM											
TEST REPORTING UNITS:			pH Units	mg/l	umho/cm	mg/l	mg/l						
TEST METHOD DETECTION LIMIT:			N/A	5	2.0	5							
TEST METHOD USED:			SM 4500 H <sub>2</sub> O	5 EPA 160.2	SM 2510 B	EPA 1604							
ANALYZED BY (SELF/LAB): <u>VVECK LABORATORIES</u>			LAB	LAB	LAB	LAB							

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

DICE 00938

1999-2000  
ANNUAL REPORT

SIDE B

FORM 1-SAMPLING & ANALYSIS RESULTS

SECOND STORM EVENT

- If analytical results are less than the detection limit (or non detectable), show the value as less than the numerical value of the detection limit (example: <.05)
- If you did not analyze for a required parameter, do not report "0" Instead, leave the appropriate box blank

When analysis is done using portable analysis (such as portable pH meters, SC meters, etc.), indicate "PA" in the appropriate test method used box.

NAME OF PERSON COLLECTING SAMPLE(S): \_\_\_\_\_ TITLE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

DESCRIBE DISCHARGE LOCATION Example: NW Out Fall	DATE/TIME OF SAMPLE COLLECTION ____/____/____ <input type="checkbox"/> AM <input type="checkbox"/> PM	TIME DISCHARGE STARTED ____:____ <input type="checkbox"/> AM <input type="checkbox"/> PM	ANALYTICAL RESULTS For Second Storm Event										
			BASIC PARAMETERS					OTHER PARAMETERS					
			pH	TSS	SC	O&G	TOC						
TEST REPORTING UNITS:			pH Units	mg/l	umho/cm	mg/l	mg/l						
TEST METHOD DETECTION LIMIT:													
TEST METHOD USED:													
ANALYZED BY (SELF/LAB):													

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

DICE 00939



**Weck Laboratories, Inc.**

Environmental and Analytical Services - Since 1964

Report Date: Monday, February 14, 2000

Received Date: Tuesday, January 25, 2000

Log By: tn

Log Time: 16 59

Client: Air Liquide  
8832 Dice Road  
Santa Fe Springs, CA 90670

Phone: (562) 945-1383

FAX: (562) 693-1156

Attn.: Lindolfo Clemente

Project: SWPPP

P.O. #:

Turnaround Time: Normal

### CERTIFICATE OF ANALYSIS

Lab#: A000566-001

Sample ID: South End Storm Water Drain

Matrix: Storm Water

Sampled By: Lindolfo Clemente

Date: 1/25/00

Time: 8:30

Parameter	Result	Units	Dilution Factor	PQL	Method	Analyzed	Worksheet #
pH	7.06	Units	1		SM 4500 H B	1/25/00 kk	WS10900
Total Suspended Solids	36	mg/L	1	5	EPA 160.2	1/28/00 km	WS10987
Conductivity	110	umho/cm	1	2.0	SM 2510 B	2/1/00 lm	WS11046
Prep. SPE							
Oil & Grease	ND	mg/L	1	5	EPA 1664	2/11/00 ln	WS11341

ND = Not Detected

PQL = Practical Quantitation Limit.

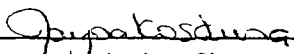
TR = Trace detection, detected but below the PQL

J = Estimated value, detected but below the PQL

NA = Not Applicable.

Sub = Subcontracted analysis, original report enclosed

Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance

  
Authorized Signatory

ELAP # 1132

LACSD # 10143

**DICE 00940**

Lab#: A000566

Page 1 of 1

14859 East Clark Avenue, City of Industry, California 91745-1396

(626) 336-2139

FAX (626) 336-2634

[www.wecklabs.com](http://www.wecklabs.com)



**Air Liquide America Corporation  
8832 Dice Road  
Santa Fe Springs, CA 90670  
Industrial Gas Fill Plant  
WDID # 4 19S000389**

**Explanation of "no" answers indicated on the 1999-2000 Annual Report**

**E.1 – Sampling and Analysis Results**

Pollution prevention team failed to sample a second storm event due to personnel changes within the pollution prevention team. The team is being revised during the ACSCE review to ensure that team membership is stable and that required samples are taken during the 2000-01 reporting year.

**E.10** – following a review of plant activities, it has been determined that samples do not need to be analyzed for Al, Fe, and N+N.

**G.1-**

Junior Clemente, Plant Shift Lead, made the following observations:

**October** – There was no rain observed during this month.

**November** – There was not enough rain to cause a discharge.

**December** – There were no storms during normal business hours.

**February** – There was no rain or not enough rain to cause a discharge this month.

**March** – There was no rain or not enough rain to cause a discharge this month.

**April** – Pollution prevention team personnel did not conduct the required observations this month. The team will be revised to better emphasize the importance of conducting the required observations, and to ensure it takes place even in transition.

**May** – There was no rain or not enough rain to cause a discharge this month.

BMPs and the pollution prevention team will be reviewed and revised, as necessary, to ensure compliance with the General Permit.

State of California  
STATE WATER RESOURCES CONTROL BOARD

1998-1999

**ANNUAL REPORT**

FOR

**STORM WATER DISCHARGES ASSOCIATED  
WITH INDUSTRIAL ACTIVITIES**

SUBMITTED 6/29/99  
by SHANE Ivankevich

Reporting Period July 1, 1998 through June 30, 1999

An annual report is required to be submitted to your local Regional Water Quality Control Board (Regional Board) by July 1 of each year. This document must be certified and signed, under penalty of perjury, by the appropriate official of your company. Many of the Annual Report questions require an explanation. Please provide explanations on a separate sheet as an attachment. **Retain a copy of the completed Annual Report for your records.**

If any information contained in Items A, B, and C below is incorrect, please cross out or highlight the incorrect information (do not white out or erase) and provide the correct information next to or above the incorrect information.

If you have any questions, please contact your Regional Board Storm Water Program Contact. The address of the Regional Board (where the Annual Report must be filed) along with the name and telephone number of the contact is indicated below.

**REGIONAL BOARD INFORMATION:**

LOS ANGELES REGIONAL WATER BOARD  
101 CENTRE PLAZA DR.  
MONTEREY PARK, CA 91754-2156

DAN RADULESCU  
(323) 266-7630

**GENERAL INFORMATION****A. Facility WDID No:**

4 19S000389

**B. Facility Operator Information:**

Contact Person:

FOIA ex 6, Personal Privacy

~~LIQUID AIR CORPORATION~~ AIR LIQUIDE AMERICA CORP.  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670

**C. Facility Information:**

Contact Person:

FOIA ex 6, Personal Privacy

~~LIQUID AIR CORPORATION~~ AIR LIQUIDE AMERICA CORP.  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670

SIC Code(s):

2813 Industrial Gases

DICE 00942

1998-99  
**ANNUAL REPORT**

**SPECIFIC INFORMATION**

**MONITORING AND REPORTING PROGRAM**

**D. SAMPLING AND ANALYSIS EXEMPTIONS AND REDUCTIONS**

1. For the reporting period, was your facility exempt from collecting and analyzing samples from **two** storm events in accordance with sections B.12 or 15 of the General Permit?

☐ YES Go to Item D.2

☒ NO Go to Section E

2. Indicate the reason your facility is exempt from collecting and analyzing samples from **two** storm events. Attach a copy of the first page of the appropriate certification if you check boxes ii, iii, iv, or v.

- i. ☐ Participating in an Approved Group Monitoring Plan

Group Name: \_\_\_\_\_

- ii. ☐ Submitted No Exposure Certification (NEC)

Date Submitted: \_\_\_\_/\_\_\_\_/\_\_\_\_

Re-evaluation Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Does facility continue to satisfy NEC conditions?

☐ YES

☐ NO

- iii. ☐ Submitted Sampling Reduction Certification (SRC)

Date Submitted: \_\_\_\_/\_\_\_\_/\_\_\_\_

Re-evaluation Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Does facility continue to satisfy SRC conditions?

☐ YES

☐ NO

- iv. ☐ Received Regional Board Certification

Certification Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

- v. ☐ Received Local Agency Certification

Certification Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

3. If you checked boxes i or iii above, were you scheduled to sample one storm event during the reporting year?

☐ YES Go to Section E

☐ NO Go to Section F

4. If you checked boxes ii, iv, or v, go to Section F.

**E. SAMPLING AND ANALYSIS RESULTS**

1. How many storm events did you sample? 2

If less than 2, **attach explanation** (if you checked item D.2.i or iii. above, only attach explanation if you answer "0").

2. Did you collect storm water samples from the first storm of the wet season that produced a discharge during scheduled facility operating hours? (Section B.5 of the General Permit)

☒ YES

☐ NO **Attach explanation**

3. How many storm water discharge locations are at your facility? 1

4. For each storm event sampled, did you collect and analyze a sample from each of the facility's storm water discharge locations? ☒ YES, go to Item E.6 ☐ NO
5. Was sample collection or analysis reduced in accordance with Section B.7.d of the General Permit? ☐ YES ☐ NO, attach explanation

If "YES", attach documentation supporting your determination that two or more drainage areas are substantially identical.

Date facility's drainage areas were last evaluated      /      /     

6. Were all samples collected during the first hour of discharge? ☒ YES ☐ NO, attach explanation
7. Was all storm water sampling preceded by three (3) working days without a storm water discharge? ☒ YES ☐ NO, attach explanation
8. Were there any discharges of stormwater that had been temporarily stored or contained? (such as from a pond) ☐ YES ☒ NO, go to Item E.10
9. Did you collect and analyze samples of temporarily stored or contained storm water discharges from two storm events? (or one storm event if you checked item D.2.i or iii. above) ☐ YES ☐ NO, attach explanation
10. Section B.5. of the General Permit requires you to analyze storm water samples for pH, Total Suspended Solids (TSS), Specific Conductance (SC), Total Organic Carbon (TOC) or Oil and Grease (O&G), other pollutants likely to be present in storm water discharges in significant quantities, and analytical parameters listed in Table D of the General Permit
- a. Is your facility required to analyze additional parameters listed in Table D of the General Permit? ☐ YES ☒ NO, Go to Item E.11
- b. Did you analyze all storm water samples for the applicable parameters listed in Table D? ☒ YES ☐ NO
- c. If you did not analyze all storm water samples for the applicable Table D parameters, check one of the following reasons:
- \_\_\_\_\_ The parameter has not been detected in significant quantities from the last two consecutive sampling events. **Attach explanation**
- \_\_\_\_\_ The parameter is not likely to be present in storm water discharges and authorized non-storm water discharges in significant quantities based upon the facility operator's evaluation. **Attach explanation**
- \_\_\_\_\_ Other. **Attach explanation**

11. For each storm event sampled, attach a copy of the laboratory analytical reports and report the sampling and analysis results using Form 1 or its equivalent. The following must be provided for each sample collected:

- Date and time of sample collection
- Name and title of sampler.
- Parameters tested.
- Name of analytical testing laboratory
- Discharge location identification.
- Testing results.
- Test methods used.
- Test detection limits.
- Date of testing.
- Copies of the laboratory analytical results.

F. QUARTERLY VISUAL OBSERVATIONS

1. **Authorized Non-Storm Water Discharges**

Section B.3.b of the General Permit requires quarterly visual observations of all authorized non-storm water discharges and their sources.

- a. Do authorized non-storm water discharges occur at your facility?

☐ YES ☒ NO Go to Item F.2

- b. Indicate whether you visually observed all authorized non-storm water discharges and their sources during the quarters when they were discharged. **Attach an explanation for any "NO" answers.** Indicate "N/A" for quarters without any authorized non-storm water discharges.

July -September ☐ YES ☐ NO ☒ N/A      October-December ☐ YES ☐ NO ☒ N/A

January-March ☐ YES ☐ NO ☒ N/A      April-June ☐ YES ☐ NO ☒ N/A

- c. Use **Form 2** to report quarterly visual observations of authorized non-storm water discharges or provide the following information.

- i. name of each authorized non-storm water discharge
- ii. date and time of observation
- iii. source and location of each authorized non-storm water discharge
- iv. characteristics of the discharge at its source and impacted drainage area/discharge location
- v. name, title, and signature of observer
- vi. any new or revised BMPs necessary to reduce or prevent pollutants in authorized non-storm water discharges Provide new or revised BMP implementation date.

2. **Unauthorized Non-Storm Water Discharges**

Section B.3.a of the General Permit requires quarterly visual observations of all drainage areas to detect the presence of unauthorized non-storm water discharges and their sources

- a. Indicate whether you visually observed all drainage areas to detect the presence of unauthorized non-storm water discharges and their sources. **Attach an explanation for any "NO" answers.**

July -September ☒ YES ☐ NO      October-December ☒ YES ☐ NO

January-March ☒ YES ☐ NO      April-June ☒ YES ☐ NO

- b. Based upon the quarterly visual observations, were any unauthorized non-storm water discharges detected?

☐ YES ☒ NO Go to item F.2.d

- c. Have each of the unauthorized non-storm water discharges been eliminated or permitted?

☐ YES ☐ NO Attach explanation

- d. Use **Form 3** to report quarterly unauthorized non-storm water discharge visual observations or provide the following information.

- i. name of each unauthorized non-storm water discharge
- ii. date and time of observation.
- iii. source and location of each unauthorized non-storm water discharge.
- iv. characteristics of the discharge at its source and impacted drainage area/discharge location.
- v. name, title, and signature of observer.
- vi. any corrective actions necessary to eliminate the source of each unauthorized non-storm water discharge and to clean impacted drainage areas Provide date unauthorized non-storm water discharge(s) was eliminated or scheduled to be eliminated.

# G. MONTHLY WET SEASON VISUAL OBSERVATIONS

Section B 4.a of the General Permit requires you to conduct monthly visual observations of storm water discharges at all storm water discharge locations during the wet season. These observations shall occur during the first hour of discharge or, in the case of temporarily stored or contained storm water, at the time of discharge.

- 1 Indicate below whether monthly visual observations of storm water discharges occurred at all discharge locations. **Attach an explanation for any "NO" answers.**

	YES	NO		YES	NO
October	<input checked="" type="checkbox"/>	<input type="checkbox"/>	February	<input checked="" type="checkbox"/>	<input type="checkbox"/>
November	<input checked="" type="checkbox"/>	<input type="checkbox"/>	March	<input checked="" type="checkbox"/>	<input type="checkbox"/>
December	<input checked="" type="checkbox"/>	<input type="checkbox"/>	April	<input checked="" type="checkbox"/>	<input type="checkbox"/>
January	<input checked="" type="checkbox"/>	<input type="checkbox"/>	May	<input type="checkbox"/>	<input checked="" type="checkbox"/> NO Discharges occurred in May

2. Report monthly wet season visual observations using **Form 4** or provide the following information.

- date, time, and location of observation
- name and title of observer
- characteristics of the discharge (i.e., odor, color, etc.) and source of any pollutants observed.
- any new or revised BMPs necessary to reduce or prevent pollutants in storm water discharges. Provide new or revised BMP implementation date.

## ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION (ACSCE)

### H. ACSCE CHECKLIST

Section A.9 of the General Permit requires the facility operator to conduct one ACSCE in each reporting period (July 1-June 30). Evaluations must be conducted within 8-16 months of each other. The SWPPP and monitoring program shall be revised and implemented, as necessary, within 90 days of the evaluation. The checklist below includes the minimum steps necessary to complete a ACSCE. Indicate whether you have performed each step below. **Attach an explanation for any "NO" answers.**

- Have you inspected all potential pollutant sources and industrial activities areas? ☒ YES ☐ NO  
The following areas should be inspected:
  - areas where spills and leaks have occurred during the last year.
  - outdoor wash and rinse areas.
  - process/manufacturing areas
  - loading, unloading, and transfer areas.
  - waste storage/disposal areas.
  - dust/particulate generating areas.
  - erosion areas.
  - building repair, remodeling, and construction
  - material storage areas
  - vehicle/equipment storage areas
  - truck parking and access areas
  - rooftop equipment areas
  - vehicle fueling/maintenance areas
  - non-storm water discharge generating areas
- Have you reviewed your SWPPP to assure that its BMPs address existing potential pollutant sources and industrial activities areas? ☒ YES ☐ NO
- Have you inspected the entire facility to verify that the SWPPP's site map, is up-to-date? The following site map items should be verified: ☒ YES ☐ NO
  - facility boundaries
  - outline of all storm water drainage areas
  - areas impacted by run-on
  - storm water discharges locations
  - storm water collection and conveyance system
  - structural control measures such as catch basins, berms, containment areas, oil/water separators, etc.

4. Have you reviewed all General Permit compliance records generated since the last annual evaluation?

☒ YES

☐ NO

The following records should be reviewed:

- quarterly authorized non-storm water discharge visual observations
- monthly storm water discharge visual observation
- records of spills/leaks and associated clean-up/response activities
- quarterly unauthorized non-storm water discharge visual observations
- Sampling and Analysis records
- preventative maintenance inspection and maintenance records

5. Have you reviewed the major elements of the SWPPP to assure compliance with the General Permit?

☒ YES

☐ NO

The following SWPPP items should be reviewed:

- pollution prevention team
- list of significant materials
- description of potential pollutant sources
- assessment of potential pollutant sources
- identification and description of the BMPs to be implemented for each potential pollutant source

6. Have you reviewed your SWPPP to assure that a) the BMPs are adequate in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges, and b) the BMPs are being implemented?

☒ YES

☐ NO

The following BMP categories should be reviewed:

- good housekeeping practices
- spill response
- employee training
- erosion control
- quality assurance
- preventative maintenance
- material handling and storage practices
- waste handling/storage
- structural BMPs

7. Has all material handling equipment and equipment needed to implement the SWPPP been inspected?

☒ YES

☐ NO

#### I. ACSCE EVALUATION REPORT

The facility operator is required to provide an evaluation report that includes:

- identification of personnel performing the evaluation
- the date(s) of the evaluation
- necessary SWPPP revisions
- schedule for implementing SWPPP revisions
- any incidents of non-compliance and the corrective actions taken.

Use Form 5 to report the results of your evaluation or develop an equivalent form.

#### J. ACSCE CERTIFICATION

The facility operator is required to certify compliance with the Industrial Activities Storm Water General Permit. To certify compliance, both the SWPPP and Monitoring Program must be up to date and be fully implemented.

Based upon your ACSCE, do you certify compliance with the Industrial Activities Storm Water General Permit?

☒ YES

☐ NO

If you answered "NO" attach an explanation to the ACSCE Evaluation Report why you are not in compliance with the Industrial Activities Storm Water General Permit.

## ATTACHMENT SUMMARY

Answer the questions below to help you determine what should be attached to this annual report. Answer NA (Not Applicable) to questions 2-4 if you are not required to provide those attachments.

1. Have you attached Forms 1,2,3,4, and 5 or their equivalent? ☒ YES (Mandatory)
2. If you conducted sampling and analysis, have you attached the laboratory analytical reports? ☒ YES ☐ NO ☐ NA
3. If you checked box II, III, IV, or V in item D.2 of this Annual Report, have you attached the first page of the appropriate certifications? ☐ YES ☐ NO ☒ NA
4. Have you attached an explanation for each "NO" answer in items E.1, E.2, E.5-E.7, E.9, E 10.c, F.1.b, F.2.a, F.2.c, G 1, H.1-H.7, or J? ☒ YES ☐ NO ☒ NA

## ANNUAL REPORT CERTIFICATION

I am duly authorized to sign reports required by the INDUSTRIAL ACTIVITIES STORM WATER GENERAL PERMIT (see Standard Provision C 9) and I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: SHANE IVANKOVICH

Signature: Shane Ivankovich Date: 6/24/99

Title: ENGINEER



## DESCRIPTION OF BASIC ANALYTICAL PARAMETERS

The Industrial Activities Storm Water General Permit (General Permit) requires you to analyze storm water samples for at least four parameters. These are pH, Total Suspended Solids (TSS), Specific Conductance (SC), and Total Organic Carbon (TOC). Oil and Grease (O&G) may be substituted for TOC. In addition, you must monitor for any other pollutants which you believe to be present in your storm water discharge as a result of industrial activity and analytical parameters listed in Table D of the General Permit. There are no numeric limitations for the parameters you test for.

The four parameters which the General Permit requires to be tested are considered *indicator* parameters. In other words, regardless of what type of facility you operate, these parameters are nonspecific and general enough to usually provide some indication whether pollutants are present in your storm water discharge. The following briefly explains what each of these parameters mean:

**pH** is a numeric measure of the hydrogen-ion concentration. The neutral, or acceptable, range is within 6.5 to 8.5. At values less than 6.5, the water is considered acidic, above 8.5 it is considered alkaline or basic. An example of an acidic substance is vinegar, and a alkaline or basic substance is liquid antacid. Pure rainfall tends to have a pH of a little less than 7. There may be sources of materials or industrial activities which could increase or decrease the pH of your storm water discharge. If the pH levels of your storm water discharge are high or low, you should conduct a thorough evaluation of all potential pollutant sources at your site.

**Total Suspended Solids (TSS)** is a measure of the undissolved solids that are present in your storm water discharge. Sources of TSS include sediment from erosion of exposed land, and dirt from impervious (i.e. paved) areas. Sediment by itself can be very toxic to aquatic life because it covers feeding and breeding grounds, and can smother organisms living on the bottom of a water body. Toxic chemicals and other pollutants also adhere to sediment particles. This provides a medium by which toxic or other pollutants end up in our water ways and ultimately in human and aquatic life. TSS levels vary in runoff from undisturbed land. It has been shown that TSS levels increase significantly due to land development.

**Specific Conductance (SC)** is a numerical expression of the ability of the water to carry an electric current. SC can be used to assess the degree of mineralization, salinity, or estimate the total dissolved solids concentration of a water sample. Because of air pollution, most rain water has a SC a little above zero. A high SC could affect the usability of waters for drinking, irrigation, and other commercial or industrial use.

**Total Organic Carbon (TOC)** is a measure of the total organic matter present in water. (All organic matter contains carbon) This test is sensitive and able to detect small concentrations of organic matter. Organic matter is naturally occurring in animals, plants, and man. Organic matter may also be man made (so called synthetic organics). Synthetic organics include pesticides, fuels, solvents, and paints. Natural organic matter utilizes the oxygen in a receiving water to biodegrade. Too much organic matter could place a significant oxygen demand on the water, and possibly impact its quality. Synthetic organics either do not biodegrade or biodegrade very slowly. Synthetic organics are a source of toxic chemicals that can have adverse affects at very low concentrations. Some of these chemicals bioaccumulate in aquatic life. If your levels of TOC are high, you should evaluate all sources of natural or synthetic organics you may use at your site.

**Oil and Grease (O&G)** is a measure of the amount of oil and grease present in your storm water discharge. At very low concentrations, O&G can cause a sheen (that floating "rainbow") on the surface of water (1 qt. of oil can pollute 250,000 gallons of water). O&G can adversely affect aquatic life and create unsightly floating material and film on water, thus making it undrinkable. Sources of O&G include maintenance shops, vehicles, machines and roadways.

If you have any questions regarding whether or not your constituent concentrations are too high, please contact your local Regional Board office.

1998-99  
ANNUAL REPORT  
FORM 1-SAMPLING & ANALYSIS RESULTS

FIRST STORM EVENT

- If analytical results are less than the detection limit (or non detectable), show the value as less than the numerical value of the detection limit (example: < 05)
- If you did not analyze for a required parameter, do not report "0". Instead, leave the appropriate box blank
- When analysis is done using portable analysis (such as portable pH meters, SC meters, etc.), indicate "PA" in the appropriate test method used box.
- Make additional copies of this form as necessary

NAME OF PERSON COLLECTING SAMPLE(S): MIKE GREGOR TITLE: PRODUCTION LEAD SIGNATURE: [Signature]

DESCRIBE DISCHARGE LOCATION Example NW Out Fall	DATE/TIME OF SAMPLE COLLECTION	TIME DISCHARGE STARTED	ANALYTICAL RESULTS For First Storm Event									
			BASIC PARAMETERS					OTHER PARAMETERS				
			pH	TSS	SC	O&G	TOC					
MAIN SOUTH Discharge	11/11/98 <input type="checkbox"/> AM 3:30 <input checked="" type="checkbox"/> PM	<input type="checkbox"/> AM 3:00 <input checked="" type="checkbox"/> PM	8.56	207	7410	ND (45)						
	___/___/___ <input type="checkbox"/> AM ___:___ <input type="checkbox"/> PM	<input type="checkbox"/> AM ___:___ <input type="checkbox"/> PM										
	___/___/___ <input type="checkbox"/> AM ___:___ <input type="checkbox"/> PM	<input type="checkbox"/> AM ___:___ <input type="checkbox"/> PM										
	___/___/___ <input type="checkbox"/> AM ___:___ <input type="checkbox"/> PM	<input type="checkbox"/> AM ___:___ <input type="checkbox"/> PM										
TEST REPORTING UNITS:			pH Units	mg/l	umho/cm	mg/l	mg/l					
TEST METHOD DETECTION LIMIT:			N/A	5	2	5						
TEST METHOD USED:			SM4500-HB	EPA 160.2	SM2510B	EPA 413.1						
ANALYZED BY (SELF/LAB):			LAB	LAB	LAB	LAB						

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

1998-99  
ANNUAL REPORT

FORM 1-SAMPLING & ANALYSIS RESULTS

SECOND STORM EVENT

- If analytical results are less than the detection limit (or non detectable), show the value as less than the numerical value of the detection limit (example: <.05)
- If you did not analyze for a required parameter, do not report "0". Instead, leave the appropriate box blank

- When analysis is done using portable analysis (such as portable pH meters, SC meters, etc.), indicate "PA" in the appropriate test method used box.

NAME OF PERSON COLLECTING SAMPLE(S): MIKE GREGOR

TITLE: PRODUCTION LEAD

SIGNATURE: [Signature]

DESCRIBE DISCHARGE LOCATION Example: NW Out Fall	DATE/TIME OF SAMPLE COLLECTION	TIME DISCHARGE STARTED	ANALYTICAL RESULTS For Second Storm Event								
			BASIC PARAMETERS					OTHER PARAMETERS			
			pH	TSS	SC	O&G	TOC				
MAIN SOUTH DISCHARGE	4/8/99 7:00 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	7:00 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	8.55	44	240	ND (<.05)					
	/  / <input type="checkbox"/> AM <input type="checkbox"/> PM	: <input type="checkbox"/> AM <input type="checkbox"/> PM									
	/  / <input type="checkbox"/> AM <input type="checkbox"/> PM	: <input type="checkbox"/> AM <input type="checkbox"/> PM									
	/  / <input type="checkbox"/> AM <input type="checkbox"/> PM	: <input type="checkbox"/> AM <input type="checkbox"/> PM									
TEST REPORTING UNITS:			pH Units	mg/l	umho/cm	mg/l	mg/l				
TEST METHOD DETECTION LIMIT:			N/A	5	2.0	0.5					
TEST METHOD USED:			SM 4500 HB	EPA 160.2	SM 2540 B	EPA 413.2					
ANALYZED BY (SELF/LAB):			LAB	LAB	LAB	LAB					

TSS - Total Suspended Solids

SC - Specific Conductance

O&G - Oil & Grease

TOC - Total Organic Carbon

DICE 00951

1998-1999  
ANNUAL REPORT

SIDE A

FORM 2-QUARTERLY VISUAL OBSERVATIONS OF AUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)

- NO AUTHORIZED DISCHARGES OCCUR,  
- VISUAL INSPECTED BMP Done

- Quarterly dry weather visual observations are required of each authorized NSWD.
- Observe each authorized NSWD source, impacted drainage area, and discharge location

- Authorized NSWDs must meet the conditions provided in Section D (pages 5-6), of the General Permit.
- Make additional copies of this form as necessary.

QUARTER: JULY-SEPT. DATE: <u>8/10/98</u>	Observers Name: <u>MIKE GREGOR</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.
QUARTER: OCT.-DEC. DATE: <u>10/5/98</u>	Observers Name: <u>SHANE IVANKOVICH</u> Title: <u>ENGINEER</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.
QUARTER: JAN.-MARCH DATE: <u>2/18/99</u>	Observers Name: <u>MIKE GREGOR</u> Title: <u>PRODUCTION LEAD</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.
QUARTER: APRIL-JUNE DATE: <u>6/11/99</u>	Observers Name: <u>SHANE IVANKOVICH</u> Title: <u>ENGINEER</u> Signature: <u>[Signature]</u>	WERE ANY AUTHORIZED NSWDs DISCHARGED DURING THIS QUARTER? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If YES, complete reverse side of this form.

DICE 00952

1998-1999  
ANNUAL REPORT

**FORM 2-QUARTERLY VISUAL OBSERVATIONS OF AUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)**

DATE /TIME OF OBSERVATION	SOURCE AND LOCATION OF AUTHORIZED NSWD  <u>EXAMPLE:</u> Air conditioner Units on Building C	NAME OF AUTHORIZED NSWD  <u>EXAMPLE:</u> Air conditioner condensate	DESCRIBE AUTHORIZED NSWD CHARACTERISTICS  Indicate whether authorized NSWD is clear, cloudy, or discolored, causing staining, contains floating objects or an oil sheen, has odors, etc.		DESCRIBE ANY REVISED OR NEW BMPs AND PROVIDE THEIR IMPLEMENTATION DATE
			At the NSWD Source	At the NSWD Drainage Area and Discharge Location	
<div style="text-align: center;">_/_/_</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_/_/_</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_/_/_</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_/_/_</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_/_/_</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>	DICE 00953				
<div style="text-align: center;">_/_/_</div> <div style="display: flex; justify-content: space-between;"> <span>_ : _</span> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					

1998-1999  
ANNUAL REPORT

FORM 3-QUARTERLY VISUAL OBSERVATIONS OF UNAUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)

- Unauthorized NSWDS are discharges (such as wash or rinse waters) that do not meet the conditions provided in Section D (pages 5-6) of the General Permit.
- Quarterly visual observations are required to observe current and detect prior unauthorized NSWDS.
- Quarterly visual observations are required during dry weather and at all facility drainage areas.
- Each unauthorized NSWDS source, impacted drainage area, and discharge location must be identified and observed.
- Unauthorized NSWDS that can not be eliminated within 90 days of observation must be reported to the Regional Board in accordance with Section A.10.e of the General Permit.
- Make additional copies of this form as necessary.

<b>QUARTER: JULY-SEPT.</b>  <b>DATE/TIME OF OBSERVATIONS</b> <u>8/10/98 8:00</u> <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	<b>Observers Name:</b> <u>MIKE GREGOR</u> <b>Title:</b> <u>PRODUCTION LEAD</u> <b>Signature:</b> <u>[Signature]</u>	<b>WERE UNAUTHORIZED NSWDS OBSERVED?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  <b>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If YES to either question, complete reverse side.
<b>QUARTER: OCT.-DEC.</b>  <b>DATE/TIME OF OBSERVATIONS</b> <u>10/5/98 1:00</u> <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	<b>Observers Name:</b> <u>SHANE IVANKOVICH</u> <b>Title:</b> <u>ENGINEER</u> <b>Signature:</b> <u>[Signature]</u>	<b>WERE UNAUTHORIZED NSWDS OBSERVED?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  <b>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If YES to either question, complete reverse side.
<b>QUARTER: JAN.-MARCH</b>  <b>DATE/TIME OF OBSERVATIONS</b> <u>2/18/99 11:00</u> <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	<b>Observers Name:</b> <u>MIKE GREGOR</u> <b>Title:</b> <u>PRODUCTION LEAD</u> <b>Signature:</b> <u>[Signature]</u>	<b>WERE UNAUTHORIZED NSWDS OBSERVED?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  <b>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If YES to either question, complete reverse side.
<b>QUARTER: APRIL-JUNE</b>  <b>DATE/TIME OF OBSERVATIONS</b> <u>6/11/99 11:00</u> <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	<b>Observers Name:</b> <u>SHANE IVANKOVICH</u> <b>Title:</b> <u>ENGINEER</u> <b>Signature:</b> <u>[Signature]</u>	<b>WERE UNAUTHORIZED NSWDS OBSERVED?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  <b>WERE THERE INDICATIONS OF PRIOR UNAUTHORIZED NSWDS?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If YES to either question, complete reverse side.

## 1998-1999

**FORM 3 QUARTERLY VISUAL OBSERVATIONS OF UNAUTHORIZED  
NON-STORM WATER DISCHARGES (NSWDs)**

OBSERVATION DATE (FROM REVERSE SIDE)	NAME OF UNAUTHORIZED NSWD	SOURCE AND LOCATION OF UNAUTHORIZED NSWD	DESCRIBE UNAUTHORIZED NSWD CHARACTERISTICS <small>Indicate whether unauthorized NSWD is clear, cloudy, discolored, causing stains; contains floating objects or an oil sheen, has odors, etc.</small>		DESCRIBE CORRECTIVE ACTIONS TO ELIMINATE UNAUTHORIZED NSWD AND TO CLEAN IMPACTED DRAINAGE AREAS. PROVIDE UNAUTHORIZED NSWD ELIMINATION DATE.
			AT THE UNAUTHORIZED NSWD SOURCE	AT THE UNAUTHORIZED NSWD AREA AND DISCHARGE LOCATION	
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: right;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>	EXAMPLE: Vehicle Wash Water	EXAMPLE: NW Corner of Parking Lot			
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: right;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: right;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: right;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: right;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM         </div>					

**DICE 00955**

1998-1999  
ANNUAL REPORT  
FORM 4-MONTHLY VISUAL OBSERVATIONS OF  
STORM WATER DISCHARGES

Storm water discharge visual observations are required for at least one storm event per month between October 1 and May 31.  
Visual observations must be conducted during the first hour of discharge at all discharge locations

- Discharges of temporarily stored or contained storm water must be observed at the time of discharge
- Indicate "None" in the first column of this form if you did not conduct a monthly visual observation.
- Make additional copies of this form as necessary.

Observation Date: October <u>28</u> 1998	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>MIKE GREGOR</u>	Observation Time	10 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Title <u>PRODUCTION LEAD</u>	Time Discharge Began	10 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

Observation Date: November <u>11</u> 1998	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>MIKE GREGOR</u>	Observation Time	3 : 00 <input checked="" type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Title <u>PRODUCTION LEAD</u>	Time Discharge Began	3 : 00 <input checked="" type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

Observation Date: December <u>2</u> 1998	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>SHANE JUNKOVICH</u>	Observation Time	11 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Title <u>ENGINEER</u>	Time Discharge Began	11 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

Observation Date: January <u>25</u> 1999	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>MIKE GREGOR</u>	Observation Time	8 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Title <u>PRODUCTION LEAD</u>	Time Discharge Began	8 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	:	<input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	:
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>



1998-1999  
ANNUAL REPORT  
FORM 4-MONTHLY VISUAL OBSERVATIONS OF  
STORM WATER DISCHARGES

DATE/TIME OF OBSERVATION (From Reverse Side)	DRAINAGE AREA DESCRIPTION	DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS	IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS	DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM </div>	<u>EXAMPLE:</u> Discharge from material storage Area #2	Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining; containing floating objects or an oil sheen, has odors, etc.	<u>EXAMPLE:</u> Oil sheen caused by oil dripped by trucks in vehicle maintenance area.	
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM </div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;"> <input type="checkbox"/> AM  <input type="checkbox"/> PM </div>				

DICE 00957

1998-1999  
ANNUAL REPORT  
FORM 4 (Continued)-MONTHLY VISUAL OBSERVATIONS OF  
STORM WATER DISCHARGES

- Storm water discharge visual observations are required for at least one storm event per month between October 1 and May 31
- Visual observations must be conducted during the first hour of discharge at all discharge locations.

- Discharges of temporarily stored or contained storm water must be observed at the time of discharge.
- Indicate "None" in the first column of this form if you did not conduct a monthly visual observation
- Make additional copies of this form as necessary.

Observation Date: February <u>5</u> 1999	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>MIKE GREGOR</u>	Observation Time	10 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>PRODUCTION LEAD</u>	Time Discharge Began	10 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

Observation Date: March <u>15</u> 1999	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>MIKE GREGOR</u>	Observation Time	7 : 30 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>PRODUCTION LEAD</u>	Time Discharge Began	7 : 30 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

Observation Date: April <u>8</u> 1999	Drainage Location Description	#1 MAIN SOUTH DISCHARGE	#2	#3	#4
Observers Name <u>MIKE GREGOR</u>	Observation Time	7 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>PRODUCTION LEAD</u>	Time Discharge Began	7 : 00 <input type="checkbox"/> P.M. <input checked="" type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

Observation Date: May <u>      </u> 1999 NO STORM EVENTS OCCURRED	Drainage Location Description	#1	#2	#3	#4
Observers Name <u>      </u>	Observation Time	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Title <u>      </u>	Time Discharge Began	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.	: <input type="checkbox"/> P.M. <input type="checkbox"/> A.M.
Signature <u>[Signature]</u>	Were Pollutants Observed (If yes, complete reverse side)	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

1998-1999  
**ANNUAL REPORT**  
**FORM 4 (Continued)-MONTHLY VISUAL OBSERVATIONS OF**  
**STORM WATER DISCHARGES**

DATE/TIME OF OBSERVATION (From Reverse Side)	DRAINAGE AREA DESCRIPTION	DESCRIBE STORM WATER DISCHARGE CHARACTERISTICS	IDENTIFY AND DESCRIBE SOURCE(S) OF POLLUTANTS	DESCRIBE ANY REVISED OR NEW BMPs AND THEIR DATE OF IMPLEMENTATION
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>	<u>EXAMPLE:</u> Discharge from material storage Area #2	Indicate whether storm water discharge is clear, cloudy, or discolored; causing staining, containing floating objects or an oil sheen, has odors, etc.	<u>EXAMPLE:</u> Oil sheen caused by oil dripped by trucks in vehicle maintenance area.	
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>				
<div style="text-align: center;">_ / _ / _</div> <div style="text-align: center;">_ : <input type="checkbox"/> AM           <input type="checkbox"/> PM</div>				

DICE 00959

1998-1999  
ANNUAL REPORT

FORM 5-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION  
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

VALUATION DATE: 6/1/99 INSPECTOR NAME: SHANE IVANKOVICH TITLE: ENGINEER SIGNATURE: Shane Ivankovich

<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p> <p>Shipping AND RECEIVING AREA</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP implementation</p>	<p>Describe additional/revise BMPs or corrective actions and their date(s) of implementation</p>
<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p> <p>ACETYLENE PLANT</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP implementation</p>	<p>Describe additional/revise BMPs or corrective actions and their date(s) of implementation</p>
<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p> <p>CYLINDER FILL BUILDING</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP implementation</p>	<p>Describe additional/revise BMPs or corrective actions and their date(s) of implementation</p>
<p>POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)</p> <p>MAINTENANCE AREA</p>	<p>HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>	<p>If yes, to either question, complete the next two columns of this form</p>	<p>Describe deficiencies in BMPs or BMP implementation</p>	<p>Describe additional/revise BMPs or corrective actions and their date(s) of implementation</p>

DICE 00960

1998-1999  
ANNUAL REPORT

FORM 5 (Continued)-ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION  
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY BMP STATUS

EVALUATION DATE: 6/11/99 INSPECTOR NAME: SHANE IVANKOVICH TITLE: ENGINEER SIGNATURE: Shane Ivankovich

POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)  <u>PROPYLENE/PROPANE</u> <u>FILLING AREA</u>	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO				
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO				
POTENTIAL POLLUTANT SOURCE/INDUSTRIAL ACTIVITY AREA (as identified in your SWPPP)	HAVE ANY BMPs NOT BEEN FULLY IMPLEMENTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	If yes, to either question, complete the next two columns of this form	Describe deficiencies in BMPs or BMP implementation	Describe additional/revised BMPs or corrective actions and their date(s) of implementation
ARE ADDITIONAL/REVISED BMPs NECESSARY? <input type="checkbox"/> YES <input type="checkbox"/> NO				

DICE 00961

Client: Air Liquide  
8832 Dice Road  
Santa Fe Springs, CA 90670

Report Date: November 25, 1998

Received Date: November 12, 1998  
Thursday 11:35/TGN  
FAX (562) 698-4991  
693-1156

Attn.: Wayne Dooley

(562) 906-8710 x

Project Name: SWPPP

Project #:

Purchase Order #:

Normal Turnaround

### Certificate of Analysis

Lab#: 9830568 Sample ID: Storm Drain Matrix: Storm Water  
Sampled By: Mike Gregor Date: 11/11/1998 Time: 15:30

Parameter	Result	Units	PQL	Method	Analyzed	Run #
pH. ....	8.56	Units		SM4500-H 9	11/12/1998	98156599
Total Suspended Solids.....	207	mg/L	5	EPA 160.2	11/17/1998	98156802
Specific Conductance. ....	7,410	umhos/cm	2	SM 2510B	11/17/1998	98156754
Oil & Grease ....	ND	mg/L	5	EPA 413.1	11/23/1998	98156990

ND = Not Detected

PQL = Practical Quantifiable Limit

e = Estimated (> MDL, but < PQL)

Any remaining sample(s) for testing will be disposed of three weeks from the final report date unless other arrangements are made in advance.

Authorized Signature

DICE 00962

4859 East Clark Avenue, Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634



**Weck Laboratories, Inc.**

Environmental and Analytical Services - Since 1964

Report Date: Monday, April 19, 1999

Received Date: Thursday, April 08, 1999

Log By: el

Log Time: 11:05

Client: Air Liquide  
8832 Dice Road  
Santa Fe Springs, CA 90670  
Attn.: Wayne Dooley

Phone: (562) 906-8740 945-1383

FAX: (562) 698-4991

Project:

P.O. #:

Turnaround Time: Normal

### CERTIFICATE OF ANALYSIS

Lab#: 992635-001  
Sampled By: Mike Gregor

Sample ID: Storm Water  
Date: 4/8/99 Time: 7:00

Matrix: Storm Water

Parameter	Result	Units	Dilution Factor	PQL	Method	Analyzed
pH	8.55	Units	1		SM 4500H B	4/8/99 tc
Total Suspended Solids	44	mg/L	1	5	EPA 160.2	4/14/99 hp
Conductivity	240	umho/cm	1	2.0	SM 2510B	4/14/99 lm
Oil & Grease	ND	mg/L	1	0.5	EPA 413.2	4/9/99 bt

ND = Not Detected.

PQL = Practical Quantitation Limit

TR = Trace detection, detected but below the PQL.

J = Estimated value, detected but below the PQL.

NA = Not Applicable.

Sub = Subcontracted analysis, original report enclosed.

Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.

  
Authorized Signatory

DICE 00963

Lab#: 992635

Page 1 of 1

14859 East Clark Avenue, City of Industry, California 91745-1396

(626) 336-2139

FAX (626) 336-2634

www.wecklabs.com

## *Monitoring of Storm Water*

During the wet season, a designated Pollution Prevention Team member will be assigned and trained to collect runoff samples from two storms. Samples will be collected and analyzed to determine the effectiveness of the facility's BMPs in reducing pollutant source contamination of storm water discharges. Samples will be collected during the wet season, October 1st to April 30<sup>th</sup>,

### **Storm water sampling and analysis protocol:**

- Grab samples will be collected from the discharge point where the storm water discharge exits the facility ~~under the curb-~~ located west of the parking lot near the gate. at the storm water drainage ditch along the southern property boundary.
- A sample will be drawn from below the water surface, but above the ground level to avoid scraping the ground.
- Samples will be collected during the first hour of discharge only from: a) the first storm of the wet season and b) from at least one other storm event during the wet season.
- Samples will only be collected from storm water discharges that occur during facility operating hours and are preceded by at least three working days without storm water discharge.
- Samples will be analyzed at Weck Laboratories, Inc., located in Industry, CA, for pH, total suspended solids, specific conductance, total organic carbon, and oil and grease.
- Samples will be collected in containers supplied by Weck Laboratories, Inc. and submitted as soon as possible following the collection. Weck Laboratories is located at 14859 E. Clark Ave., Industry, CA 91745. (626-336-2139).



Note: samples will not be taken if adverse climatic conditions are present.

#### **Non-storm Water Discharge Visual Observations (Authorized and Non-authorized)**

These observations are required under the General Permit. Observations will include both authorized non-storm water discharges such as cleaning water to the sump and clarifier in the Wash Bay and non-authorized storm water discharges such as vehicle wash water not being contained. The objective here is to look for discharges that may come in contact with pollutant sources or be an actual pollutant source that could contaminate storm water runoff or be discharged into a storm water drain.

Designated Pollution Prevention Team members will be assigned to visually observe all drainage areas within facility boundaries for the presence of unauthorized non-storm water discharges.

Observation protocol are as follows:

- Visual observations shall occur quarterly, during daylight hours, on days with no storm water discharges, and during scheduled operating hours.
- Observations will be conducted the periods of January-March, April-June, July-September, and October-December.
- Observations shall document the presence of any discolorations, stains, odors, floating materials, etc., as well as the source of any discharge.
- Observations will be documented using Form 3 "Quarterly Visual Observations of Unauthorized Non-Storm Water Discharges (NSWDs)" and Form 2 "Quarterly Visual Observations of Authorized Non-Storm Water Discharges (NSWDs)".

#### **Monthly Storm Water Discharge Visual Observations**

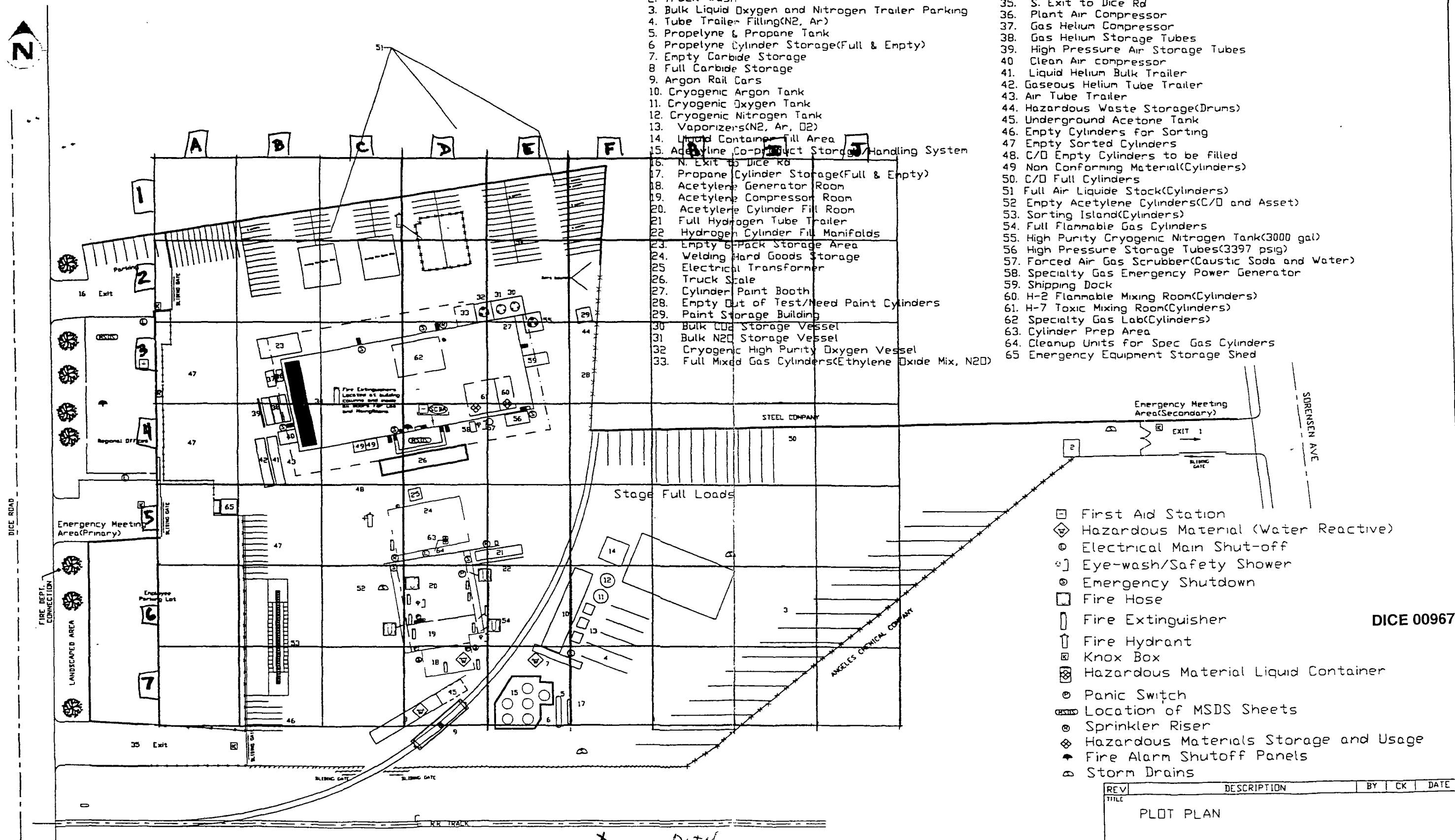
Visual observations of storm water discharges are required under the General Permit. Observations must be performed during one storm per month during the wet season (October 1<sup>st</sup> to May 31<sup>st</sup>). Following are the observation protocol:

- Observations must take place during the first hour of discharge from your facility.
- Observations must be conducted at all discharge locations.
- Observations are only required during daylight hours, during facility operating hours, and must be preceded by three working days without any storm water discharges.

- 6 Observations will be documented using the Form 4 "Monthly Visual Observations of Storm Water Discharges".

1. Exit to Sorenson
2. Truck Wash
3. Bulk Liquid Oxygen and Nitrogen Trailer Parking
4. Tube Trailer Filling(N2, Ar)
5. Propylene & Propane Tank
6. Propylene Cylinder Storage(Full & Empty)
7. Empty Carbide Storage
8. Full Carbide Storage
9. Argon Rail Cars
10. Cryogenic Argon Tank
11. Cryogenic Oxygen Tank
12. Cryogenic Nitrogen Tank
13. Vaporizers(N2, Ar, O2)
14. Liquid Container Fill Area
15. Acetylene Compressor Storage/Handling System
16. N. Exit to Dice Rd
17. Propane Cylinder Storage(Full & Empty)
18. Acetylene Generator Room
19. Acetylene Compressor Room
20. Acetylene Cylinder Fill Room
21. Full Hydrogen Tube Trailer
22. Hydrogen Cylinder Fill Manifolds
23. Empty 6-Pack Storage Area
24. Welding Hard Goods Storage
25. Electrical Transformer
26. Truck Scale
27. Cylinder Paint Booth
28. Empty Out of Test/Need Paint Cylinders
29. Paint Storage Building
30. Bulk CO2 Storage Vessel
31. Bulk N2O Storage Vessel
32. Cryogenic High Purity Oxygen Vessel
33. Full Mixed Gas Cylinders(Ethylene Oxide Mix, N2O)

34. Industrial & Medical Fill Stations(Cylinders)
35. S. Exit to Dice Rd
36. Plant Air Compressor
37. Gas Helium Compressor
38. Gas Helium Storage Tubes
39. High Pressure Air Storage Tubes
40. Clean Air compressor
41. Liquid Helium Bulk Trailer
42. Gaseous Helium Tube Trailer
43. Air Tube Trailer
44. Hazardous Waste Storage(Drums)
45. Underground Acetone Tank
46. Empty Cylinders for Sorting
47. Empty Sorted Cylinders
48. C/D Empty Cylinders to be Filled
49. Non Conforming Material(Cylinders)
50. C/D Full Cylinders
51. Full Air Liquide Stock(Cylinders)
52. Empty Acetylene Cylinders(C/D and Asset)
53. Sorting Island(Cylinders)
54. Full Flammable Gas Cylinders
55. High Purity Cryogenic Nitrogen Tank(3000 gal)
56. High Pressure Storage Tubes(3397 psig)
57. Forced Air Gas Scrubber(Caustic Soda and Water)
58. Specialty Gas Emergency Power Generator
59. Shipping Dock
60. H-2 Flammable Mixing Room(Cylinders)
61. H-7 Toxic Mixing Room(Cylinders)
62. Specialty Gas Lab(Cylinders)
63. Cylinder Prep Area
64. Cleanup Units for Spec Gas Cylinders
65. Emergency Equipment Storage Shed



- First Aid Station
- ◇ Hazardous Material (Water Reactive)
- ⊙ Electrical Main Shut-off
- ⊙ Eye-wash/Safety Shower
- ⊙ Emergency Shutdown
- Fire Hose
- Fire Extinguisher
- ↑ Fire Hydrant
- ⊙ Knox Box
- ⊙ Hazardous Material Liquid Container
- ⊙ Panic Switch
- ⊙ Location of MSDS Sheets
- ⊙ Sprinkler Riser
- ⊙ Hazardous Materials Storage and Usage
- ⊙ Fire Alarm Shutoff Panels
- ⊙ Storm Drains

DICE 00967

0 40FT 80FT 120FT

GRAPHIC SCALE

REV	DESCRIPTION	BY	CK	DATE
TITLE	PLOT PLAN			
CUSTOMER	AIR LIQUIDE COMPRESSED GAS DIVISON SANTA Fe SPRINGS, CALIFORNIA			
DRAWN	Duncan	CHECK		
DATE	2/28/97	SCALE	1"=40'-0"	
DRAWING NUMBER	REV	SHEET		

**AIR LIQUIDE**  
AIR LIQUIDE AMERICA CORPORATION



# AIR LIQUIDE

TM

## FACSIMILE TRANSMITTAL SHEET

TO:

Toby

COMPANY

ALAC

FAX NUMBER

562-464-5262

PHONE NUMBER

562-464-1204

RE:

Wastewater permit renewal

FROM:

Kelly Davidson

DATE

04/17/01

TOTAL NO OF PAGES INCLUDING COVER

2

SENDER'S FAX NUMBER

713-896-2879

YOUR REFERENCE NUMBER

713-896-2887

☐ URGENT ☒ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS

Toby,

Please keep a copy of this letter in your files. We no longer need to renew your wastewater application. The rules have changed and your facility is considered an insignificant source. If our amount of wastewater increases, we will need to notify the agency.

Thanks,

Kelly



## COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400  
Mailing Address: P. O. Box 4998, Whittier, CA 90607-4998  
Telephone (562) 699-7411

### FAX TRANSMITTAL

TECHNICAL SERVICES DEPARTMENT  
Fax Machine No. (562) 692-5103

To: Kelly Davidson  
Air Liquide

From: Alicia Jauregui  
(562) 699-7411, ext. 2918

Date: April 17, 2001

No. of Pages (Including this page): 1

Subject: Air Liquide America Corp.  
8832 Dice Rd.  
Santa Fe Springs, CA 90670  
Industrial Wastewater Discharge Permit No. 13806

Ms. Davidson:

This transmittal is in response to your inquiry into the necessary action required by your company to comply with the Sanitation Districts' permit renewal requirements. Pursuant to federal regulations outlined in 40 CFR Part 403.8, the Environmental Protection Agency requires the Sanitation Districts to issue permits with a statement of duration not to exceed five years to Significant Industrial Users as defined under 40 CFR 403.3(t). The subject facility is not classified as a Significant Industrial User. As such, your company is not required to submit an industrial wastewater discharge permit renewal. A permit revision will however be required if and when there has been a significant change (25% or more) in the wastewater quantity or quality from that approved in the previously issued permit. If you have any questions concerning this matter, you may contact me at the number shown above.

Sincerely,

Alicia Jauregui  
Project Engineer  
Industrial Waste Section

DICE 00969



IwFNE

# COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400  
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998  
Telephone: (310) 699-7411, FAX: (310) 695-6139

CHARLES W. CARRY  
*Chief Engineer and General Manager*

April 19, 1996  
File: 18-00.05-00/96-13806M  
Account No. 1968766

362  
Mr. John R. Price  
City of Santa Fe Springs  
11710 E. Telegraph Road  
Santa Fe Springs, CA 90670

Dear Mr. Price:

Industrial Wastewater Discharge Permit No. 13806 (Ref. No. 4784)

Air Liquide America Corporation  
8832 Dice Road  
Santa Fe Springs, CA 90670

Enclosed are three (3) approved sets of plans and copies of the approved Industrial Wastewater Discharge Permit for the subject company. This permit is issued following a change of ownership at the facility. Please review these for compliance with your requirements, and retain the copies you require for your files. The Applicant's copy of the approved plans and Industrial Wastewater Discharge Permit, along with a copy of this letter and requirement list, should be forwarded to the applicant. A copy of this letter is forwarded to the applicant as notification of the Sanitation Districts' permit requirements, which are in force from the current date. If any additional permit requirements are issued to the applicant by your agency, copies should be forwarded to the Sanitation Districts for our records. The approved plans consist of:

1. Site Plan--Improvements

Approval of the permit is subject to compliance with all applicable Ordinance requirements, with any corrections shown in red on the drawings, and with the items indicated on the attached requirement list. Failure to comply with all items invalidates this approval and issuance. Any company which operates without a valid permit is subject to immediate termination of industrial sewer service. Successful compliance will result in a formal permit that expires five (5) years from the date of approval.

DICE 00970

If you have any questions concerning these requirements, please contact Alicia Jaurequi of the Sanitation Districts' Industrial Waste Section at extension 2918.

Very truly yours,

Charles W. Carry



John D. Kilgore  
Supervising Civil Engineer

JDK:MJG:wh

cc: John Oliveri  
Air Liquide America Corp.

DICE 00971

SANITATION DISTRICTS OF LOS ANGELES COUNTY

Charles W. Carry, Chief Engineer and General Manager  
1955 Workman Mill Road, P.O. Box 4998, Whittier, California 90607

INDUSTRIAL WASTEWATER DISCHARGE PERMIT

REQUIREMENT LIST

COMPANY NAME: Air Liquide America Corporation

INDUSTRIAL WASTEWATER DISCHARGE PERMIT NUMBER: 13806

ACCOUNT NUMBER: 1968766

DATE OF APPROVAL: April 18, 1996

EXPIRATION DATE: April 18, 2001

The approval and issuance of this permit is being made conditionally and subject to Air Liquide America Corporation being in compliance with all indicated items on this list. Satisfactory evidence of compliance with these conditions should be supplied to the Sanitation Districts where requested. Satisfactory evidence will consist of a minimum of written notification signed by a responsible company official, and in some cases may involve the submission of additional drawings and data, or verification by a Districts representative. Failure to comply with all items on the requirement list, including all deadlines specified, invalidates this approval and issuance. Invalidation of this permit will result in Air Liquide America Corporation being deemed to be operating without a valid permit and subject to immediate discontinuance of sewer services for industrial operations.

1. This permit (IW # 13806) is issued following a change of ownership at the site. The facility was previously operated by Liquid Air, Inc., which discharged industrial wastewater under IW # 4784. The facility manufactures acetylene and packages industrial gases in cylinders.
2. This industrial wastewater discharge permit is issued only for the discharge of treated wastewater from truck washing and from hydrotesting gas cylinders. The discharge of any other type of waste will require prior approval from the Sanitation Districts. This approved permit will expire five (5) years from the date of approval.
3. Air Liquide must notify the Sanitation Districts of any change in the status of the subject facility, if ownership or operating responsibility changes, or if the industrial waste connection is legally abandoned.
4. A new permit application must be submitted when there is a significant change in wastewater quantity (25% or more) or quality from that given in the approved permit information. The completed application should be submitted to the local governmental agency for initial processing prior to Sanitation Districts' review. Approval must be obtained prior to any construction of new facilities.
5. Waste haulers reports must be obtained and kept on file for a period of at least four (4) years for any solid wastes from the wastewater pretreatment system and liquid wastes leaving the plant other than in the sewer system. These reports must be made available to representatives of the Sanitation Districts upon request.
6. All industrial wastewater discharged to the public sewer must have a temperature lower than 140° F.



7. All industrial wastewater discharged to the public sewer must not contain over 0.1 milligram/liter of dissolved sulfides.
8. The pH of the wastewater must be maintained at or above 6.0 at all times. Proper neutralization procedures must be observed to assure that this limit is not violated.
9. Numerical limits have been established by the Sanitation Districts for the maximum concentrations of heavy metals, and other toxic materials, permissible in an industrial discharge to the public sewers. The limits are those shown in the following list of "Industrial Wastewater Local Effluent Limitations." Air Liquide America Corporation is advised that any discharge in excess of these limits requires corrective action by the discharger. Penalties applicable to violations of these limits will be strictly enforced by the Sanitation Districts.

**SANITATION DISTRICTS OF LOS ANGELES COUNTY**  
**INDUSTRIAL WASTEWATER LOCAL EFFLUENT LIMITATIONS**  
**FOR JOINT OUTFALL DISTRICTS**

**PHASE I CONTROL PERIOD**

<u>Parameter</u>	<u>Limit (mg/l)*</u>
Arsenic	3
Cadmium	15
Chromium (Total)	10
Copper	15
Lead	40
Mercury	2
Nickel	12
Silver	5
Zinc	25
Cyanide (Total)	10
<hr/>	
Total Identifiable	Essentially
Chlorinated Hydrocarbons**	None

\* - Maximum concentration at any time

\*\* - Total Identifiable Chlorinated Hydrocarbons (TICH) comprise:

Aldrin and Dieldrin

Chlordane (cis & trans), trans-nonachlor, oxychlordane, heptachlor and heptachlor epoxide

DDT and derivatives: p, p', and o, p' isomers of DDT, DDD, and DDE

Endrin

HCH: sum of  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$  isomers of hexachlorocyclohexane

Toxaphene

Polychlorinated biphenyls (PCB's)

10. An industrial wastewater sampling point, suitable for obtaining grab or continuous samples, must be installed downstream of the wastewater interceptor as indicated in red on the plans. An acceptable sampling point consists of a square concrete box (approximately 2' X 2') with inlet and outlet piping inverts 12" above the bottom. The sampling box shall be protected with a tightly fitted cover, which must be readily removable and accessible at all times. The walls of the sampling box must extend 3"

above the general surrounding grade to exclude surface water. Plumbing codes will generally require a trap, vent and cleanout downstream of the sampling box. The sample box must comply with the County Engineer Standard I-12 attached to the approved plans.

11. The required sampling box downstream of interceptor is hereby designated as the legal sampling point for Air Liquide America Corporation. The permittee is responsible for maintaining and cleaning the sampling point to prevent any build-up of oil and grease, sediment or sludge; failure to do so does not invalidate sampling test results. Analytical results from samples taken from this location according to accepted sampling procedure shall be accepted as binding. Safe and convenient access to the sampling point must be provided for representatives of the Sanitation Districts. Air Liquide must modify the sampling point if the Districts determine that the existing one is inadequate.
12. The Districts' personnel may provide a split of any composite sample collected if sufficient sample volume is available. Districts' personnel may also provide split, concurrent, or sequential grab samples. These samples will be left with a designated company representative. If the designee is not available, these samples will be left with whomever is available.

Air Liquide must follow appropriate preservation techniques, analytical procedures, and holding periods specified in 40 CFR 136, if the analytical test results from these samples are to be used for compliance or surcharge reporting purposes. Failure to follow the prescribed procedures will invalidate the test results.

13. Air Liquide is advised that additional industrial wastewater pretreatment equipment may be required if inspection or monitoring indicates prohibited materials are discharged to the public sewer.
14. Any plans for changes in equipment or processes must be submitted (for approval before implementation) to the Sanitation Districts.
15. If Air Liquide America Corporation is required or chooses to file Long Form Surcharge Statement, surcharge tests of the industrial wastewater must be performed at the intervals indicated on the enclosed table of Surcharge Test Frequency and submitted annually with the wastewater treatment surcharge statement.
16. If the wastewater flowrate and strength data indicate an increase in the sewerage capacity unit usage by 25% or more, Air Liquide America Corporation may be required to revise their permit, and will be required to pay a corresponding connection fee. The existing entitlement at this site is 24.02 CUs.
17. In the event of the discharge of any prohibited waste, excessive quantities or concentrations of any restricted waste, or of the discharge of material not covered under this permit, the company must immediately notify the Sanitation Districts by calling 310-699-7411, extension 2907, during office hours or the Long Beach Pumping Plant, 310-437-6520, during non-office hours.
18. The exposed truck wash area currently allows rainfall and storm runoff to enter the sanitary sewer. Air Liquide must install a system to divert rainwater from the sewer to the storm drain. Per discussions with the District's inspector, the company may choose to build a berm around the wash area which diverts runoff from the sewer but allows trucks to drive over it. The company must build this berm within 90 days and submit as-built plans to the Districts. If the company chooses a different option (i.e. roofing, automatic diversion mechanism), a proposal must be submitted to the Districts within 90 days for approval. Please review the enclosed "Guidelines for the Discharge of Rainwater, Stormwater, Groundwater, and Other Water Discharges."
19. An on-site air separation plant was demolished several years ago. The industrial wastewater discharge permits issued to Liquid Air, Inc. (IW # 4061) and to M.G. Burdett Gas Products (IW # 9221) for operation of this plant have been voided by the Sanitation Districts.

20. Information requested, or satisfactory evidence of compliance, must be submitted to the Sanitation Districts within 90 days to satisfy condition numbers 10 and 18.

PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE  
COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY  
955 Workman Mill Road / Whittier, CA  
Mailing Address: P.O. Box 4998 / Whittier, California 90607-4998  
Charles W. Carry, Chief Engineer and General Manager  
(310) 699-7411

PERMIT NO. **13806**

01 CHECK ONE: New Sewer Connection ☐ Existing Sewer Connection ☒

02 Applicant AIR LIQUIDE AMERICA CORP.  
(Legal Company Name)

03 Check one and fill in appropriate information

☒ Corporation Name AIR LIQUIDE AMERICA CORP.

Year Incorporated \_\_\_\_\_ State of Incorporation \_\_\_\_\_ ID# \_\_\_\_\_

☐ Partnership Name \_\_\_\_\_ Partners \_\_\_\_\_

☐ Sole Proprietor Name \_\_\_\_\_ Business Names \_\_\_\_\_

04 Company Address 8832 DICE SANTA FE SPRINGS CA 90670  
(Street) (City) (State) (Zip)

05 Mailing Address Same  
(Street) (City) (State) (Zip)

06 Point of Discharge Dice Road -- local sewer line mps

07 Number of years applicant has been in business at present location 5 +  
(yrs) (months)

08 Name of Property Owner Air Liquide America Corp  
Address of Property Owner 8832 Dice Road SFS 90670 (310) 945 1383  
(Street) (City) (Zip) (Telephone Number)

09 Assessors Map Book No. 8168 Page No. 013 Parcel No. 008 mps

10 Type of Industry INDUSTRIAL GASES CHEMICAL MANUFACTURING 2813  
(General Description) (Federal SIC No)

11 Number of Employees (Full Time) 80 (Part Time) \_\_\_\_\_

12 Raw Materials Used INDUSTRIAL GASES, calcium carbide, water  
(General Description — Add Additional Sheets as Needed)

13 Products Produced INDUSTRIAL, MEDICAL, FOOD GASES IN CYLINDERS  
(General Description — Add Additional Sheets as Needed)  
acetylene, lime  
(Daily Amount Produced)

14 Wastewater Producing Operations CLEAN TEST CYLINDERS, TRUCK WASH  
(Full Description — Add Additional Sheets as Needed)

15 Time of Discharge \_\_\_\_\_ AM/PM to \_\_\_\_\_ AM/PM, Shifts per Day 3, Days per Week M T W Th F Sa Su  
(Circle AM or PM) (Circle Days)

16 Wastewater Flow Rate 470 1700 per water bills  
(Average) Gallons per Day mps Gallons per Minute (Peak)

17 Constituents of Wastewater Discharge Dirty water  
(General Description — Attach Chemical Analysis Results to the Application)

DICE 00976

18 Person in company responsible for industrial wastewater discharge  
MILTON BIRD OPERATION MANAGER (310) 945 1383  
(Name) (Position) (Telephone Number)

I affirm that all information furnished is true and correct and that the applicant will comply with the conditions stated on the back of this permit form.

Date 9/29, 1994

19 Signature for Applicant Milton Bird Operations Manager  
(Company Administrative Official) (Name) (Position)

20 Approved/Reviewed by City or County Official

Date OCTOBER 19, 1994

For L.A. County Dept. of Public Works... ☐

City of SANTA FE SPRINGS  
Name S.D. Buckner

Position FIRE MARSHAL

Approved by Sanitation Districts of Los Angeles County

Date 4-19-96

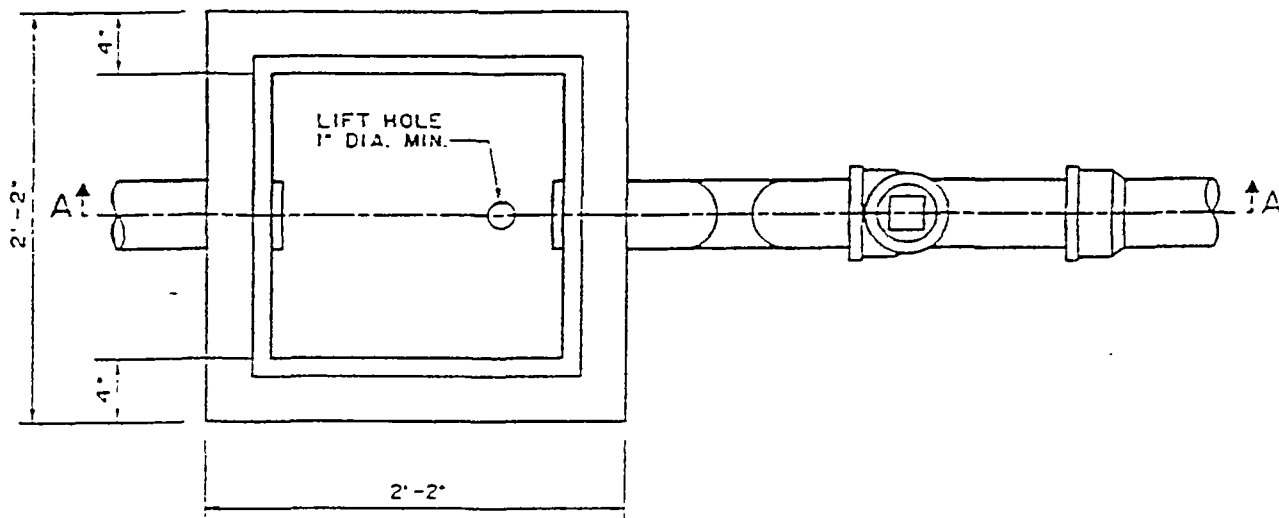
Expiration Date 4-19-01

Charles W. Carry, Chief Engineer & General Manager

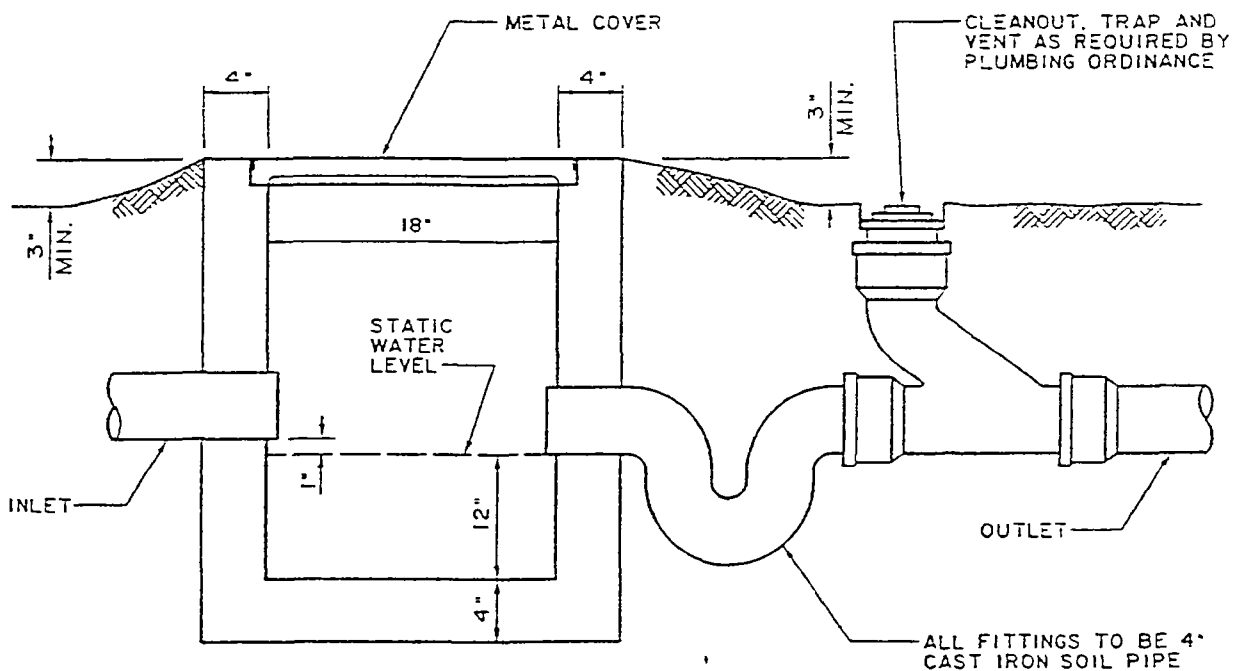
By John Ryan

Position Supervising Civil Engineer

Note: Please submit application first to the applicable City or County agency in which the point of discharge is located.  
Please contact the local agency for the required permit processing fee. Submit the original application (Do not send copies)



PLAN  
WITH COVER REMOVED



SECTION A-A

DICE 00977

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

SAMPLING BOX

STANDARD PLAN

2044-0

SHEET 1 OF 2

APPROVED

*Thomas A. Nelson*  
DIRECTOR OF PUBLIC WORKS

5/31/1992

DATE

SUPERSEDES COUNTY ENGINEER STD.1-12

SANITATION DISTRICTS OF LOS ANGELES COUNTY  
1955 Workman Mill Road / Whittier, CA  
Mailing Address P.O. Box 4998 / Whittier, CA 90607-4998  
James F. Stahl, Chief Engineer and General Manager  
(562) 699-7411 www.lacsd.org

01 CHECK ONE. New Sewer Connection ☐ Existing Sewer Connection ☐

02 Applicant \_\_\_\_\_  
(Legal Company Name)

03 Check one and fill in appropriate information

☐ Corporation Name \_\_\_\_\_  
Year Incorporated \_\_\_\_\_ State of Incorporation \_\_\_\_\_ ID# \_\_\_\_\_  
☐ Partnership Name \_\_\_\_\_ Partners \_\_\_\_\_  
☐ Sole Proprietor Name \_\_\_\_\_ Business Names \_\_\_\_\_

04 Company Address \_\_\_\_\_  
(Street) (City) (State) (Zip)

05 Mailing Address \_\_\_\_\_  
(Street) (City) (State) (Zip)

06 Point of Discharge \_\_\_\_\_

07 Number of years applicant has been in business at present location \_\_\_\_\_  
(yrs) (months)

08 Name of Property Owner \_\_\_\_\_  
Address of Property Owner \_\_\_\_\_  
(Street) (City) (Zip)  
(Telephone Number)

09 Assessors Map Book No. \_\_\_\_\_ Page No. \_\_\_\_\_ Parcel No. \_\_\_\_\_

10 Type of Industry \_\_\_\_\_  
(General Description) (Federal SIC No.)

11 Number of Employees (Full Time) \_\_\_\_\_ (Part Time) \_\_\_\_\_

12 Raw Materials Used \_\_\_\_\_  
(General Description -- Add Additional Sheets as Needed)

13 Products Produced \_\_\_\_\_  
(General Description -- Add Additional Sheets as Needed)

14 Wastewater Producing Operations \_\_\_\_\_  
(Daily Amount Produced)

15 Time of Discharge \_\_\_\_\_ AM/PM to \_\_\_\_\_ AM/PM, Shifts per day \_\_\_\_\_, Days per Week M T W Th F Sa Su  
(Circle AM or PM) (Circle Days)

16 Wastewater Flow Rate \_\_\_\_\_ Gallons per Day \_\_\_\_\_ Gallons per Minute  
(Average) (Peak)

17 Constituents of Wastewater Discharge \_\_\_\_\_  
(General Description - Attach Chemical Analysis Results to the Application)

18 Person in company responsible for industrial wastewater discharge

\_\_\_\_\_  
(Name) (Position) (Telephone Number)

I affirm that all information furnished is true and correct and that the applicant will comply with the conditions stated on the back of this permit form

Date \_\_\_\_\_

19 Signature for Applicant \_\_\_\_\_  
(Company Administrative Official) (Name) (Position)

20 Approved/Reviewed by City or County Official \_\_\_\_\_

Date \_\_\_\_\_

For L.A. County Dept. of Public Works .. ☐

City of \_\_\_\_\_

Name \_\_\_\_\_

Position \_\_\_\_\_

Approved by Sanitation Districts of Los Angeles County

Date \_\_\_\_\_

Expiration Date \_\_\_\_\_

James F. Stahl, Chief Engineer & General Manager

By \_\_\_\_\_

Position \_\_\_\_\_

DICE 00978

APPLICANT FOR PERMIT MUST READ THIS MATERIAL

IN CONSIDERATION OF THE GRANTING OF THIS PERMIT, the applicant agrees:

1. To furnish any additional information on industrial wastewater discharges as required by the Districts,
2. To accept and abide by all provisions of ordinances, policies and guidelines of the Districts,
3. To operate and maintain any required industrial wastewater treatment devices in a satisfactory approved manner,
4. To cooperate at all times with Districts' personnel, or their representatives, in the inspection, sampling and study of industrial wastewater facilities and discharges,
5. To immediately notify the Districts at (562) 699-7411 during normal working hours or (562) 437-6520 or 437-1881 after 4:00 P.M. or on weekends in the event of any accident, negligence or other occurrence that causes the discharge to the sewer of any material whose nature and quantity might be reasonably judged to constitute a hazard to the public health, environment, Districts' personnel or wastewater treatment facilities,
6. To pay to the Districts annually the required surcharge or user charge fee for industrial wastewater treatment,
7. To submit, as required by the Districts, accurate data on industrial wastewater discharge flows and wastewater constituents,
8. To operate only one industrial wastewater discharge point to the sewerage system under the authority granted by this permit,
9. To submit additional pages as required for furnish the necessary information if there is inadequate room on the reverse side of this permit form to complete submittal of requested data,
10. To apply for a revised Districts' Industrial Wastewater Discharge Permit if any change in industrial processes, production, method of wastewater treatment or operations creates a significant change in industrial wastewater quality, or if the quantity of wastewater discharged changes by more than 25% or other threshold level as specified in industrial waste permit requirements,
11. To provide immediate access to authorized personnel of the Districts to any facility directly or indirectly connected to the Districts' sewerage system under emergency conditions and at all other reasonable times.

FORM D: CHECKLIST FOR AN INDUSTRIAL WASTEWATER DISCHARGE PERMIT SUBMITTAL

COMPANY NAME: \_\_\_\_\_

1. Permit Application Form \_\_\_\_\_

2. Plans (minimum size: 11" x 17", maximum size: 30" x 42")

a. Required Plans:

Sewerage Plan (location of equipment, process tanks and sewer lines) \_\_\_\_\_

Plot Plan (location of facility, sampling point and connection to the  
public sewer) \_\_\_\_\_

Plans of Pretreatment Facilities \_\_\_\_\_

b. Additional Plans (if needed):

Spill Containment System \_\_\_\_\_

Flow Monitoring System \_\_\_\_\_

Rainwater Management \_\_\_\_\_

Combustible Gas Monitoring System \_\_\_\_\_

3. Supporting Information:

**(Always Required)**

Applicant's Questionnaire (Form A) \_\_\_\_\_

Estimation of Discharge Flow Rate and Water Bills (Form B) \_\_\_\_\_

Tank Schedule and Spill Containment Calculations (Form C) \_\_\_\_\_

Checklist (Form D) \_\_\_\_\_

**(Complete Form A to Determine Which of These are Necessary)**

Waste Minimization Plan \_\_\_\_\_

Process Description \_\_\_\_\_

Material Safety Data Sheets \_\_\_\_\_

Wastewater Analyses \_\_\_\_\_

Baseline Monitoring Report (for EPA categorical companies) \_\_\_\_\_

Pump Curves \_\_\_\_\_

Catalog Cuts of Pretreatment Equipment \_\_\_\_\_

Baseline Credit Information \_\_\_\_\_

Equipment Costs \_\_\_\_\_

Notification Report of the Discharge of Hazardous Wastes (if applicable) \_\_\_\_\_



FORM A: APPLICANT QUESTIONNAIRE

NAME OF COMPANY \_\_\_\_\_

CONTACT PERSON \_\_\_\_\_

**1. Reason for Submittal** - circle A, B, C, or D and complete the corresponding questions.

**A. New Permit (for new companies and for changes in ownership)**

Type of business \_\_\_\_\_

Is the facility new or existing? \_\_\_\_\_

If existing, previous company name \_\_\_\_\_

Type of business \_\_\_\_\_

Industrial Wastewater Discharge Permit No. \_\_\_\_\_

Provide a description of all manufacturing processes below or in an attachment.

Provide a description of all wastewater producing operations below or in an attachment.

Are any changes being made to the facility's existing wastewater pretreatment/conveyance systems?  
\_\_\_\_\_ If yes, briefly explain these modifications below or in attachments.

Is there more than one company discharging industrial wastewater at your facility? \_\_\_\_\_ If yes, provide for each company its name, a separate address and a description of its operations. If feasible, each company must apply for a separate permit and must have its own incoming water meter and a separate industrial wastewater sampling point.

If your facility will involve a new connection to the public sewer, please circle the point of connection:

a. Local city sewer, b. Sanitation Districts' trunk sewer.

If you are relocating, and had a previous Industrial Wastewater Discharge Permit, give your previous address \_\_\_\_\_, and permit number \_\_\_\_\_.

If you have received a temporary permit, give permit number \_\_\_\_\_.

All submittals for new permits **must** include a permit application, plans (if changes have occurred) and pertinent supporting information.

**B. Revision of Existing Permit (for a 25 percent or more change in wastewater quantity/quality)**

Permit number \_\_\_\_\_

Has your wastewater quantity and/or quality changed over 25 percent? \_\_\_\_\_ If yes, documentation addressing the magnitude and reason(s) for the change must be submitted. If no, a revision is not required at this time.

Have there been any changes in production processes, wastewater pretreatment systems or sewerage plumbing? \_\_\_\_\_ If yes, submit plans and describe these changes in attachments.

All submittals for a revised permit **must** include a permit application, plans (if changes have occurred) and supporting information.

**C. Addendum to Permit (for modifications to the wastewater conveyance/pretreatment system)**

Permit number \_\_\_\_\_

Attach a brief summary of the existing conditions and the proposed changes.

Submittal must include plans and supporting information.

The applicant must also answer the questions on the back of this form.

D. Permit Renewal (for permits with expiration dates)

Permit number \_\_\_\_\_

Have there been any changes in production processes, wastewater pretreatment systems or sewerage plumbing? \_\_\_\_\_ If yes, submit plans and describe these changes in attachments.

All submittals for a permit renewal **must** include a permit application, plans (if changes have occurred) and supporting information.

2. Supporting Information Required

All submittals **must** include the following forms, which are included in Appendix 6 1:

Form A - Applicant Questionnaire

Form B - Calculation of Industrial Wastewater Discharge Flow Rate

Form C - Tank Schedule and Spill Containment Calculations

Form D - Check List

Furthermore, your company must answer the questions below to determine the additional supporting information that must be provided:

A. Waste Minimization (refer to Sections 2.4 and 3.3 E)

Please describe below or in an attachment all of your company's existing/proposed pollution prevention measures (e.g., reuse, product reformulation, process changes, housekeeping measures, etc.):

Has your company previously submitted a waste minimization plan to the Districts? \_\_\_\_\_ If the answer is no, please read Sections 2.4 and 3.3E and submit the appropriate plan (if applicable). Your company is encouraged to obtain information on source reduction measures and options for your industrial processes by calling the Districts' Industrial Waste Section at (562)699-7411, ext. 2900.

B. Wastewater Quality (refer to Sections 3.3G and H)

Please provide the results of at least two 24-hour composite analyses attesting to concentrations of chemical oxygen demand, suspended solids and any priority or regulated pollutants that may be found in your wastewater. Your company must also provide material safety data sheets of all chemicals used in the facility that may directly or indirectly contaminate your wastewater

C. New Equipment (refer to Sections 3.3 F, J, and K)

Is your company installing new pretreatment, monitoring, conveyance or industrial equipment that may have an impact on the quality or quantity of your wastewater? \_\_\_\_\_ If yes, please provide catalog cuts of all units and important details such as: number of units, sizes, hours of operation, pump rating curves, operating parameters, etc.

D. Baseline Monitoring Report (refer to Sections 2.1 and 3.3 I)

Does your company currently fall under one of EPA's categories? \_\_\_\_\_ If yes, your company must submit a Baseline Monitoring Report, unless it submitted one in the past and there have been no changes in operations that may change your categorical standards.

E. Rainwater Management (refer to Section 3.2)

Are there any outdoor drains, trenches or sumps at your facility that are connected to the sewerage system? \_\_\_\_\_ If yes, your company must submit plans and information that describe the existing means to divert rainwater from the sewerage system or a proposal to comply with the Districts' rainwater

guidelines. Please be informed that new automatic rainwater diversion systems will not be approved unless the applicant proves that this is the only feasible alternative.



**AIR LIQUIDE**

Wednesday, December 06, 2000

California Department of Toxic Substance Control  
Hazardous Waste Management Program

1-800-618-6942

Attn: Margaret

Re: EPA ID Number

Dear Margaret,

This is to cancel the EPA ID #CA000012617 which was never activated and is no longer needed.  
Our current and active EPA ID# is CA000012160.  
Both numbers are currently listed for our Santa Fe Springs Facility located at 8832 Dice Rd. Santa Fe Springs, California.

If additional information is required please contact me at 713-869-2858 or Toby Erickson at 562-945-1383.

Sincerely,  
Air Liquide America Corporation

Jerry Fields  
Support Safety Specialist  
Corporate Office

**HAZARDOUS WASTE GENERATOR FEE RETURN****DUE ON OR BEFORE 02/29/04 FOR JANUARY - DECEMBER, 2003** **9103**

HWCA RVHG05

HA EF

YOUR ACCOUNT NO.  
FOIA ex 6,  
Personal Privacy

4

BOARD OF EQUALIZATION  
EXCISE TAXES AND FEES DIVISION  
PO BOX 942879  
SACRAMENTO CA 94279-6009AIR LIQUIDE AMERICA CORPORATION  
8832 DICE RD  
SANTA FE SPRINGS CA 90670-2516

BOARD USE ONLY		
RR-B/A	AUD	REG
RR-QS	FILE	REF
EFF		

MAKE CHANGES  
IF NAME OR  
ADDRESS  
IS INCORRECTREAD INSTRUCTIONS  
BEFORE PREPARING8832 DICE RD  
CAL000021160

If you are registered to make your payment by electronic funds transfer (EFT), you must still file your return timely. You can mail your return in the envelope provided or fax it to 916-327-0859. To register to make payments via EFT please contact us at 916-522-9534.

1. ☐ Please check this box if you no longer generate hazardous waste at this site. Enter the date of last generation \_\_\_\_\_ . Your account will be closed as of the date entered. For consolidated accounts, use the enclosed Schedule G to indicate the date each site last generated waste, if hazardous waste is no longer being generated at that site.

A CLASSIFICATION OF GENERATING SITES (Based on amounts of hazardous waste generated during the calendar year or portion thereof)	B NUMBER OF SITES (Do not list tonnage)	C AMOUNT OF FEES	D TOTAL FEES DUE (Column B x C)
2. Generators which generate less than 5 tons	2.	0.00	\$ 0
3. Generators which generate an amount equal to or more than 5 tons, but less than 25 tons	3.	163.00	
4. Generators which generate an amount equal to or more than 25 tons, but less than 50 tons	4.	1305.00	
5. Generators which generate an amount equal to or more than 50 tons, but less than 250 tons	5.	3262.00	
6. Generators which generate an amount equal to or more than 250 tons, but less than 500 tons	6.	16310.00	
7. Generators which generate an amount equal to or more than 500 tons, but less than 1,000 tons	7.	32620.00	
8. Generators which generate an amount equal to or more than 1,000 tons, but less than 2,000 tons	8.	48930.00	
9. Generators which generate an amount equal to or more than 2,000 tons	9.	65240.00	
10. Amount of fees (add lines 2 through 9 in Column D)	10.		\$
11. Less prepayment credit	11.		\$
12. Total fee due (subtract line 11 from line 10)	12.		\$
13. Penalty [multiply line 12 by 10% (.10) if payment is made after the due date shown above]	PENALTY 13.		\$
14. Interest of 08% per annum (0.006670 per month) is due if payment is made after the due date.	INTEREST 14.		\$
15. TOTAL AMOUNT DUE AND PAYABLE (add lines 12, 13 and 14)	15.		\$ 0

DICE 00985

I hereby certify that this return, including any accompanying schedules and statements, has been examined by me and to the best of my knowledge and belief is a true, correct and complete return.

PRINT/TYPE NAME AND TITLE  
FOIA ex 6, Personal Privacy

Env. Specialist

SIGNATURE  
FOIA ex 6, Personal Privacy

PHONE NUMBER

DATE

2/13/04

MAKE CHECK OR MONEY ORDER PAYABLE TO STATE BOARD OF EQUALIZATION

## HAZARDOUS WASTE GENERATOR FEE RETURN INSTRUCTIONS

### GENERAL INFORMATION

The Generator Fee is imposed on each site that generates (produces) hazardous waste of 5 tons or more in each calendar year. The fee is calculated for each site's generation of waste regardless of the waste's final disposition (i.e., recycling or disposal).

### EXEMPTIONS FROM THE GENERATOR FEE

- 1) Used oil removed from motor vehicles that is recycled by a recycler permitted by the Department of Toxic Substances Control. "Motor vehicle" includes locomotives, vessels, and self-propelled, off-road equipment, whether or not the equipment moves or is permitted to move on public highways.
- 2) Waste that is generated, recycled, and used onsite, and not transferred offsite at any time.
- 3) Aqueous waste treated in a treatment unit operating, or which subsequently operates, under a permit by rule, conditional authorization, or conditional exemption. However, hazardous waste generated by the treatment process is subject to the generator fee.

### EXEMPTION FROM THE DISPOSAL FEE

The disposal site operator is not required to collect the fee if the person submitting the waste for disposal provides written evidence from the generator of the waste, as shown on the originating hazardous waste manifest, that the waste is exempt from the fee. The written evidence must accompany the manifest and contain the following information:

- Name of generator
- Site address where waste was generated
- EPA number for the generating site
- Generator's Board of Equalization account number, if the generator is registered
- Type of waste submitted for disposal
- Specific explanation of the reason the waste is exempt from the fee or subject to the cleanup rate
- Signature and printed name of the person making the statement
- Telephone number and address of contact person for the generator

For audit purposes, the written evidence should be retained in your files along with a copy of the Uniform Hazardous Waste Manifest.

### FILING REQUIREMENTS

Every person who produces hazardous waste must file this return on or before the last day of February with remittance to the Board of Equalization for any amounts due. This return must be filed even though you have no liability for the fee. Failure to file may result in the imposition of civil penalties. Late payment incurs a penalty of 10% (.10) and interest at an adjusted annual rate established under section 6591.5 of the Revenue and Taxation Code. Facility operators who pay the Facility Fee are not subject to the Generator Fee for the facility site.

### PAYMENT BY ELECTRONIC FUNDS TRANSFER

**DICE 00986**

If you are registered to pay by EFT, please remember that:

- A payment is considered to be timely if it is both initiated on or before the tax due date and the funds transfer into the Board of Equalization's bank account on the banking day following the date the payment is initiated.
- Making your payment by EFT does not relieve you of the requirement to file your return by the due date. **Note:** *The reporting due dates and filing requirements have not changed.*

If you would like to file your return by fax, our fax number is 916-327-0859. If you are not registered to pay by EFT and would like to be, please contact us at 916-322-9534

### FILING INSTRUCTIONS

Please select the appropriate fee category in Column A on the front of the return for each site where hazardous waste was generated in this state. Multiply the number of generating sites in Column B by the amount of fees in Column C and enter the amount of fees due in Column D.

If you are reporting for more than one site, please use the enclosed Schedule G or provide the site address, EPA number, and appropriate fee category for each site on an attachment.

### PREPAYMENT CREDIT (LINE 11)

Some accounts were required to file a prepayment by August 31. If you paid a prepayment, enter on line 11 the amount of fee paid. If delinquency charges were paid, **do not** include those charges in the credit. If, after claiming the prepayment, the total amount due and payable on line 15 is a credit, include a letter with your return requesting the amount to be refunded to you.

**IF YOU WISH ADDITIONAL INFORMATION, PLEASE CONTACT THE STATE BOARD OF EQUALIZATION,  
EXCISE TAXES AND FEES DIVISION, ENVIRONMENTAL FEES SECTION,  
PO BOX 942879, SACRAMENTO, CA 94279-0057, TELEPHONE 916-323-9555.**

## HAZARDOUS WASTE GENERATOR FEE RETURN

DUE ON OR BEFORE 02/28/03 FOR JANUARY - DECEMBER, 2002		9102
HWCA RVHG05	HA EF	YOUR ACCOUNT NO. FOIA ex 6, Personal Privacy 5

BOARD USE ONLY		
RR-B/A	AUD	REG
RR-OS	FILE	REF
EFF		

BOARD OF EQUALIZATION  
ENVIRONMENTAL FEES DIVISION  
PO BOX 942879  
SACRAMENTO CA 94279-6009

AIR LIQUIDE AMERICA CORPORATION  
8832 DICE RD  
SANTA FE SPRINGS CA 90670-2516

MAKE CHANGES  
IF NAME OR  
ADDRESS  
IS INCORRECT

8832 DICE RD  
CAL000021160

READ INSTRUCTIONS  
BEFORE PREPARING

If you are registered to make your payment by electronic funds transfer (EFT), you must still file your return timely. You can mail your return in the envelope provided or fax it to 916-327-0859. To register to make payments via EFT please contact us at 916-322-9534.

1. ☐ Please check this box if you no longer generate hazardous waste at this site. Enter the date of last generation \_\_\_\_\_ Your account will be closed as of the date entered. For consolidated accounts, use the enclosed Schedule G to indicate the date each site last generated waste, if hazardous waste is no longer being generated at that site.

A CLASSIFICATION OF GENERATING SITES (Based on amounts of hazardous waste generated during the calendar year or portion thereof)	B NUMBER OF SITES (Do not list tonnage)	C AMOUNT OF FEES	D TOTAL FEES DUE (Column B x C)
2. Generators which generate less than 5 tons	2.	0.00	\$ 0
3. Generators which generate an amount equal to or more than 5 tons, but less than 25 tons	3.	161.00	
4. Generators which generate an amount equal to or more than 25 tons, but less than 50 tons	4.	1286.00	
5. Generators which generate an amount equal to or more than 50 tons, but less than 250 tons	5.	3215.00	
6. Generators which generate an amount equal to or more than 250 tons, but less than 500 tons	6.	16075.00	
7. Generators which generate an amount equal to or more than 500 tons, but less than 1,000 tons	7.	32150.00	
8. Generators which generate an amount equal to or more than 1,000 tons, but less than 2,000 tons	8.	48225.00	
9. Generators which generate an amount equal to or more than 2,000 tons	9.	64300.00	
10. Amount of fees (add lines 2 through 9 in Column D)	10.		\$
11. Less prepayment credit	11.		\$
12. Total fee due (subtract line 11 from line 10)	12.	DICE 00987	\$
13. Penalty [multiply line 12 by 10% (.10) if payment is made after the due date shown above]	13.	PENALTY	\$
14. Interest of 09% per annum (0.007500 per month) is due if payment is made after the due date.	14.	INTEREST	\$
15. TOTAL AMOUNT DUE AND PAYABLE (add lines 12, 13 and 14)	15.		\$ 0

I hereby certify that this return, including any accompanying schedules and statements, has been examined by me and to the best of my knowledge and belief is a true, correct and complete return.

PRINT/TYPE NAME AND TITLE  
PLANT MANAGER

SIGNATURE  
FOIA ex 6, Personal Privacy

PHONE NUMBER

DATE

1/28/03

MAKE CHECK OR MONEY ORDER PAYABLE TO STATE BOARD OF EQUALIZATION.

Always write your account number on your check or money order. Make a copy of this document for your records.

## HAZARDOUS WASTE GENERATOR FEE RETURN INSTRUCTIONS

### GENERAL INFORMATION

The Generator Fee is imposed on each site that generates (produces) hazardous waste of 5 tons or more in each calendar year. The fee is calculated for each site's generation of waste regardless of the waste's final disposition (i.e., recycling or disposal).

### EXEMPTIONS FROM THE GENERATOR FEE

- 1) Used oil removed from motor vehicles that is recycled by a recycler permitted by the Department of Toxic Substances Control. "Motor vehicle" includes locomotives, vessels, and self-propelled, off-road equipment, whether or not the equipment moves or is permitted to move on public highways.
- 2) Waste that is generated, recycled, and used onsite, and not transferred offsite at any time.
- 3) Aqueous waste treated in a treatment unit operating, or which subsequently operates, under a permit by rule, conditional authorization, or conditional exemption. However, hazardous waste generated by the treatment process is subject to the generator fee.

### EXEMPTION FROM THE DISPOSAL FEE

The disposal site operator is not required to collect the fee if the person submitting the waste for disposal provides written evidence from the generator of the waste, as shown on the originating hazardous waste manifest, that the waste is exempt from the fee. The written evidence must accompany the manifest and contain the following information:

- Name of generator
- Site address where waste was generated
- EPA number for the generating site
- Generator's Board of Equalization account number, if the generator is registered
- Type of waste submitted for disposal
- Specific explanation of the reason the waste is exempt from the fee or subject to the cleanup rate
- Signature and printed name of the person making the statement
- Telephone number and address of contact person for the generator

For audit purposes, the written evidence should be retained in your files along with a copy of the Uniform Hazardous Waste Manifest.

### FILING REQUIREMENTS

Every person who produces hazardous waste must file this return on or before the last day of February with remittance to the Board of Equalization for any amounts due. This return must be filed even though you have no liability for the fee. Failure to file may result in the imposition of civil penalties. Late payment incurs a penalty of 10% (.10) and interest at an adjusted annual rate established under Section 6591.5 of the Revenue and Taxation Code. Facility operators who pay the Facility fee are not subject to the Generator Fee for the facility site.

### PAYMENT BY ELECTRONIC FUNDS TRANSFER

**DICE 00988**

If you are registered to pay by EFT, please remember that:

- A payment is considered to be timely if it is both initiated on or before the tax due date and the funds transfer into the Board of Equalization's bank account on the banking day following the date the payment is initiated.
- Making your payment by EFT does not relieve you of the requirement to file your return by the due date. **Note:** The reporting due dates and filing requirements have not changed.

If you would like to file your return by fax, our fax number is 916-327-0859. If you are not registered to pay by EFT and would like to be, please contact us at 916-322-9534

### FILING INSTRUCTIONS

Please select the appropriate fee category in Column A on the front of the return for each site where hazardous waste was generated in this state. Multiply the number of generating sites in Column B by the amount of fees in Column C and enter the amount of fees due in Column D.

If you are reporting for more than one site, please use the enclosed Schedule G or provide the site address, EPA number, and appropriate fee category for each site on an attachment.

### PREPAYMENT CREDIT (LINE 11)

Some accounts were required to file a prepayment by August 31. If you paid a prepayment, enter on line 11 the amount of fee paid. If delinquency charges were paid, **do not** include those charges in the credit. If, after claiming the prepayment, the total amount due and payable on line 15 is a credit, include a letter with your return requesting the amount to be refunded to you.

**IF YOU WISH ADDITIONAL INFORMATION, PLEASE CONTACT THE STATE BOARD OF EQUALIZATION  
ENVIRONMENTAL FEES DIVISION, PO BOX 942879, SACRAMENTO, CA 94279-0057, TELEPHONE 916-323-9555**



## HAZARDOUS WASTE GENERATOR FEE RETURN

DUE ON OR BEFORE 02/28/02 FOR JANUARY - DECEMBER, 2001		9101
HWCA RVHG05	HA EF	YOUR ACCOUNT NO. FOIA ex 6, Personal Privacy 6

BOARD OF EQUALIZATION  
ENVIRONMENTAL FEES DIVISION  
PO BOX 942879  
SACRAMENTO CA 94279-6009

AIR LIQUIDE AMERICA CORPORATION  
8832 DICE RD  
SANTA FE SPRINGS CA 90670

8832 DICE RD  
CALO00021160

BOARD USE ONLY		
RR-B/A	AUD	REG
RR-QS	FILE	REF
EFF		

MAKE CHANGES  
IF NAME OR  
ADDRESS  
IS INCORRECT

READ INSTRUCTIONS  
BEFORE PREPARING

If you are registered to make your payment by electronic funds transfer (EFT), you must still file your return timely. You can mail your return in the envelope provided or fax it to 916-327-0859. To register to make payments via EFT please contact us at 916-322-9534.

1. ☐ Please check this box if you no longer generate hazardous waste at this site. Enter the date of last generation \_\_\_\_\_ . Your account will be closed as of the date entered. For consolidated accounts, use the enclosed Schedule G to indicate the date each site last generated waste, if hazardous waste is no longer being generated at that site.

A CLASSIFICATION OF GENERATING SITES (Based on amounts of hazardous waste generated during the calendar year or portion thereof)	B NUMBER OF SITES (Do not list tonnage)	C AMOUNT OF FEES	D TOTAL FEES DUE (Column B x C)
2. Generators which generate less than 5 tons	2.	0.00	\$ 0
3. Generators which generate an amount equal to or more than 5 tons, but less than 25 tons	3.	153.00	
4. Generators which generate an amount equal to or more than 25 tons, but less than 50 tons	4.	1222.00	
5. Generators which generate an amount equal to or more than 50 tons, but less than 250 tons	5.	3054.00	
6. Generators which generate an amount equal to or more than 250 tons, but less than 500 tons	6.	15270.00	
7. Generators which generate an amount equal to or more than 500 tons, but less than 1,000 tons	7.	30540.00	
8. Generators which generate an amount equal to or more than 1,000 tons, but less than 2,000 tons	8.	45810.00	
9. Generators which generate an amount equal to or more than 2,000 tons	9.	61080.00	
10. Amount of fees (add lines 2 through 9 in Column D)	10.		\$ 0
11. Less prepayment credit	11.		\$
12. Total fee due (subtract line 11 from line 10)	12.		\$ 0
13. Penalty [multiply line 12 by 10% (.10) if payment is made after the due date shown above]	PENALTY 13.		\$
14. Interest of 10% per annum (0.008333 per month) is due if payment is made after the due date.	INTEREST 14.		\$
15. TOTAL AMOUNT DUE AND PAYABLE (add lines 12, 13 and 14)	15.		\$ 0

I hereby certify that this return, including any accompanying schedules and statements, has been examined by me and to the best of my knowledge and belief is a true, correct and complete return.

PRINT/TYPE NAME AND TITLE  
FOIA ex 6, Personal Privacy

SIGNATURE  
FOIA ex 6, Personal Privacy

PHONE NUMBER

DATE

2/8/02

MAKE CHECK OR MONEY ORDER PAYABLE TO STATE BOARD OF EQUALIZATION.

Always write your account number on your check or money order. Make a copy of this document for your records.

## HAZARDOUS WASTE GENERATOR FEE RETURN INSTRUCTIONS

### GENERAL INFORMATION

The Generator Fee is imposed on each site that generates (produces) hazardous waste of 5 tons or more in each calendar year. The fee is calculated for each site's generation of waste regardless of the waste's final disposition (i.e., recycling or disposal).

### EXEMPTIONS FROM THE GENERATOR FEE

- 1) Used oil removed from motor vehicles that is recycled by a recycler permitted by the Department of Toxic Substances Control. "Motor vehicle" includes locomotives, vessels, and self-propelled, off-road equipment, whether or not the equipment moves or is permitted to move on public highways.
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The disposal site operator is not required to collect the fee if the person submitting the waste for disposal provides written evidence from the generator of the waste, as shown on the originating hazardous waste manifest, that the waste is exempt from the fee. The written evidence must accompany the manifest and contain the following information:

- Name of generator
- Site address where waste was generated
- EPA number for the generating site
- Generator's Board of Equalization account number, if the generator is registered
- Type of waste submitted for disposal
- Specific explanation of the reason the waste is exempt from the fee or subject to the cleanup rate
- Signature and printed name of the person making the statement
- Telephone number and address of contact person for the generator

For audit purposes, the written evidence should be retained in your files along with a copy of the Uniform Hazardous Waste Manifest.

### FILING REQUIREMENTS

Every person who produces hazardous waste must file this return on or before the last day of February with remittance to the Board of Equalization for any amounts due. This return must be filed even though you have no liability for the fee. Failure to file may result in the imposition of civil penalties. Late payment incurs a penalty of 10% (.10) and interest at an adjusted annual rate established under Section 6591.5 of the Revenue and Taxation Code. Facility operators who pay the Facility fee are not subject to the Generator Fee for the facility site.

### PAYMENT BY ELECTRONIC FUNDS TRANSFER

**DICE 00990**

If you are registered to pay by EFT, please remember that:

- A payment is considered to be timely if it is both initiated on or before the tax due date and the funds transfer into the Board of Equalization's bank account on the banking day following the date the payment is initiated.
- Making your payment by EFT does not relieve you of the requirement to file your return by the due date. **Note:** *The reporting due dates and filing requirements have not changed.*

If you would like to file your return by fax, our fax number is 916-327-0859. If you are not registered to pay by EFT and would like to be, please contact us at 916-322-9534

### FILING INSTRUCTIONS

Please select the appropriate fee category in Column A on the front of the return for each site where hazardous waste was generated in this state. Multiply the number of generating sites in Column B by the amount of fees in Column C and enter the amount of fees due in Column D.

If you are reporting for more than one site, please use the enclosed Schedule G or provide the site address, EPA number, and appropriate fee category for each site on an attachment.

### PREPAYMENT CREDIT (LINE 11)

Some accounts were required to file a prepayment by August 31. If you paid a prepayment, enter on line 11 the amount of fee paid. If delinquency charges were paid, **do not** include those charges in the credit. If, after claiming the prepayment, the total amount due and payable on line 15 is a credit, include a letter with your return requesting the amount to be refunded to you.

**IF YOU WISH ADDITIONAL INFORMATION, PLEASE CONTACT THE STATE BOARD OF EQUALIZATION  
ENVIRONMENTAL FEES DIVISION, PO BOX 942879, SACRAMENTO, CA 94279-0057, TELEPHONE 916-323-9555**



Farah Ullah  
Air Liquide America LP  
2700 Post Oak Boulevard, Suite 1800  
Houston, TX 77056  
Phone 713-402-2111 Fax 713-803-7311  
Internet: farah.ullah@airliquide.com

November 5, 2004

DTSC  
Accounting Unit EPA ID  
PO Box 806  
Sacramento, CA 95812-0806

Dear DTSC Manager:

RE: Account # [FOIA ex 6, Personal] : EPA ID Number: CAL000021160

This letter is in regards to the \$232.50 for the Annual EPA ID # fees for the Air Liquide America L.P. Santa Fe Springs, CA facility. The fees for this facility have been paid and a copy of the check is attached.

Please contact me if you have any questions. I can be reached at 713-402-2111.

Sincerely,

Farah Ullah  
Environmental Specialist  
Air Liquide America L.P.

Enclosure

DICE 00991

Account No

FOIA ex 6,

Chkamount

232.50

FOIA ex 6, Personal Privacy

Check Num

FOIA ex

Present Da

11/02/04

THIS DOCUMENT CONTAINS SECURITY INFORMATION

**AIRLINE** **NO. 7130**

**FOIA ex 6, Personal Privacy**

**FOIA ex 6, Personal Privacy**

**FOIA ex 6, Personal Privacy**

FOIA ex 6, Personal Privacy

FOIA ex 6, Personal Privacy

FOIA ex 6, Personal Privacy

DICE 00992



# QUICK SEARCH SUMMARY REPORT

November 04, 2004 02:23 PM

Request	Account Number	Check Number	Amount	Date	Status
-----	-----	-----	-----	-----	-----
Inquiry	FOIA ex 6, Personal Privacy	FOIA ex 6, Personal Privacy	\$232.50	11/02/2004	Check Paid
Photo Copy	FOIA ex 6, Personal Privacy	FOIA ex 6, Personal Privacy	\$232.50	11/02/2004	Photocopy Request Completed

DICE 00994

## 2004 VERIFICATION QUESTIONNAIRE

(See back of this form for instructions.)

The Department of Toxic Substances Control (DTSC) requires that all enclosed forms be completed and returned with appropriate fees **not later than 30 days from the date of receipt**. Instructions for all forms are included.

AIR LIQUIDE AMERICA CORP  
AIR LIQUIDE AMERICA LP  
8832 DICE RD  
SANTA FE SPRINGS CA 90670-0000

If your mailing address has changed, please  
**PRINT or TYPE the correct address below:**

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

No City Abbreviations

### DO NOT ALTER INFORMATION IN THIS AREA

1. EPA ID Number: CAL000021160  
2. Location address: 8832 DICE ROAD  
SANTA FE SPRINGS CA 90670-0000

If your business has moved, call GISS.

#### 3. COMPANY OWNER INFO:

**NOTE:** California EPA ID numbers issued by DTSC may not be transferred to another owner. If the ownership of your organization has changed, please call GISS for assistance. Do NOT fill in new owner information below.

AIR LIQUIDE AMERICA LP  
2700 POST OAK BLVD  
HOUSTON TX 77056-0000  
(713)624-8000

Company owner or Corp. name: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

Date of ownership change: \_\_\_\_\_

4. ☐ My new EPA ID number is \_\_\_\_\_

#### 5. COMPANY NAME:

If printed company name is incorrect, please provide correct name:

AIR LIQUIDE AMERICA CORP

Company name: \_\_\_\_\_

#### 6. CONTACT INFO:

If printed contact is incorrect or blank, please provide correct information:

AARON TESCH-FACILITY MGR  
8832 DICE RD  
SANTA FE SPRINGS CA 90670-0000  
(562)464-5242

Name/Title: Ilya Kazhokin

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

Business email address: \_\_\_\_\_

#### 7. SIC CODE (4 digits):

5169

If printed SIC Code is incorrect or blank, please provide correct information:

8. ☐ Check here if you wish to CANCEL the EPA ID number listed on Line 1. (See reverse side.)

## SCHEDULE A – MANIFEST FEE CALCULATION SHEET (2003 Manifests)

(See back of this form for sample manifest form.)

EPA ID Number: CAL000021160

Name of organization: AIR LIQUIDE AMERICA CORP

From **January 1, 2003 through December 31, 2003**,  
the Department of Toxic Substances Control recorded  
the number of California Manifests shown at the right  
using the EPA ID printed above.

Non-recycled: 0

Recycled: 5

(NOTE: There is no fee for solely recycled manifests.)

### Manifest Fee Calculation:

- a. Enter the total number of **non-recycled** manifests from above... 0
- b. How many of the **non-recycled** manifests listed on Line a. are  
non-recycled air compliance solvent manifests..... 0 X \$3.50 = \$ 0.00
- c. Subtract the number of manifests on Line b. from Line a. .... 0 X \$7.50 = \$ 0.00
- d. No fee due for **recycled** manifests..... \$ 0.00
- e. Total of Line b. + Line c. .... = \$ 0.00
- Note: The manifest count on Lines b. and c. should equal the count on Line a.

## INSTRUCTIONS FOR COMPLETING SCHEDULE A

- For lines a. – e. above, enter the numbers requested for each line.
  - For line b. multiply the number of manifests by \$3.50 and record the dollar amount.
  - For line c. multiply the number of manifests by \$7.50 and record the dollar amount.
  - For line e. add dollar amounts of lines b. and c. This total is the manifest fees due for the EPA ID number shown at the top of the page.
- For this assessment there are three types of manifests: non-recycled, recycled and air compliance solvents manifests. Manifests used *solely* for recycled waste will have a handling code reported as "01" or "R01" in item K on the manifest form (see circled area on manifest sample on the back of this form). All wastes listed on a manifest must have handling codes of "01" or "R01" to be counted as a solely recycled manifest. You need to pay manifest fees only for non-recycled manifests. There is no fee for recycled manifests.
- If you believe the manifest totals shown in the box above are incorrect, you may use the manifest totals from your own files to calculate the fee. However, please be aware that any difference between the amount you report and the amount printed above is subject to audit by DTSC.
- On January 1, 1999 many businesses were required to switch from petroleum-based solvents to air compliance solvents (also called water-based cleaners). The fee for manifests used solely for hazardous waste derived from air compliance solvents was reduced from \$7.50 to \$3.50. Most air compliance solvent waste is now recyclable. Manifests used to ship air compliance solvents that were recycled should not be charged \$3.50. The Manifest Fee Calculation above includes air compliance solvent manifests as part of the non-recycled manifest count. Businesses that do not recycle their air compliance solvent waste who desire to use the reduced \$3.50 fee must use their internal records to identify manifests used solely for air compliance solvent wastes.



## SCHEDULE B – FEES SUMMARY SHEET

(See back of this form for complete instructions)

All completed forms and appropriate fees must be submitted **not later than 30 days** from the date of receipt

### A. EPA ID NUMBER VERIFICATION FEE (July 1, 2003 through June 30, 2004)

- Name of your organization: Air Liquide America
- Enter the total number of California employees in your entire organization 260  
(Please read instructions for Line 2 on the back of this form.)

Number of Employees	1 – 49	50 – 74	75 – 99	100 – 249	250 – 499	500 or more
EPA ID Fee Rate	NO FEE	\$150	\$175	\$200	\$225	\$250

(Total EPA ID Number Verification Fees not to exceed \$5000)

- Enter the EPA ID Number Verification Fee rate from the table above: \$ 225
- Enter the total number of **permanent** EPA ID numbers held by your organization: 1  
(NOTE: Attach a VQ form and Schedule A for **each** permanent EPA ID number you are reporting Numbers that begin with "CAC" should not be included in your total on Line 4 See instructions.)
- Multiply Line 3 by Line 4: =\$ 225
- TOTAL** EPA ID Number Verification Fee due (Enter the dollar amount from Line 5 above OR \$5000, whichever amount is less.): \$ 0

### B. MANIFEST FEE (January 1, 2003 through December 31, 2003)

- Enter the dollar amount from Line e on your Schedule A – Manifest Fee Calculation Sheet.  
(If you are reporting more than one EPA ID number, enter the **TOTAL** of the dollar amounts from Line e on **all** your Schedule A – Manifest Fee Calculation Sheets.) \$ \_\_\_\_\_

### C. GRAND TOTAL OF EPA ID NUMBER VERIFICATION FEES AND MANIFEST FEES

- Add Line A6 and Line B1, then enter the total dollar amount.  
It is not uncommon to not owe fees. You are still required to complete and submit all forms.  
If fee is due, please make your check payable to "DTSC" for the total amount on this line: =\$ 225  
\*\*\* Please write one of your EPA ID numbers on your check.

To pay your fees via **credit card**, complete the enclosed "EPA ID and Manifest Fee Credit Card Payment Form".

I hereby certify under penalty of perjury that the information on the Verification Questionnaire(s), Schedule A(s) and Schedule B is true and correct.

Signature of Preparer Kelly Davidson  
Name (please print): Kelly Davidson

Title: Environmental Specialist  
Date: 10/4/04 Phone: 713-402-2391

THIS SECTION FOR DEPARTMENT USE ONLY			
Check No	\$AMOUNT	DATE	CID NO
12560055	12560092	12560065	DICE 00997
12560035	12560091	AMOUNT DUE	
12560075	12560096	PRIMARY ID #	

## 2004 VERIFICATION QUESTIONNAIRE

(See back of this form for instructions.)

The Department of Toxic Substances Control (DTSC) requires that all enclosed forms be completed and returned with appropriate fees **not later than 30 days from the date of receipt**. Instructions for all forms are included.

AIR LIQUIDE AMERICA CORP  
9756 SANTA FE SPRINGS RD  
SANTA FE SPRINGS CA 90670-0000

If your mailing address has changed, please  
**PRINT or TYPE the correct address below:**

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

No City Abbreviations

### DO NOT ALTER INFORMATION IN THIS AREA

1. EPA ID Number:

CAL000129317

SUSPENDED

2. Location address:

9756 SANTA FE SPRING RD

SANTA FE SPRINGS CA 90670-0000

If your business has moved, call GISS:

3. COMPANY OWNER INFO:

**NOTE:** California EPA ID numbers issued by DTSC may not be transferred to another owner. If the ownership of your organization has changed, please call GISS for assistance. Do NOT fill in new owner information below.

AIR LIQUIDE AMERICA CORP  
9756 SANTA FE SPRINGS RD  
SANTA FE SPRINGS CA 00000-0000  
(000)000-0000

Company owner or Corp. name: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

Date of ownership change: \_\_\_\_\_

4. ☐ My new EPA ID number is \_\_\_\_\_

5. COMPANY NAME:

If printed company name is incorrect, please provide correct name:

AIR LIQUIDE AMERICA CORP

Company name: \_\_\_\_\_

6. CONTACT INFO:

If printed contact is incorrect or blank, please provide correct information:

JERRY BEESON/JASON CURNELL  
9756 SANTA FE SPRINGS RD  
SANTA FE SPRINGS CA 00000-0000  
(000)000-0000

Name/Title: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

Business email address: \_\_\_\_\_

7. SIC CODE (4 digits):

If printed SIC Code is incorrect or blank, please provide correct information:

4785

8. ☒ Check here if you wish to CANCEL the EPA ID number listed on Line 1. (See reverse side.)

♻️ Printed on Recycled Paper

## SCHEDULE A – MANIFEST FEE CALCULATION SHEET (2003 Manifests)

(See back of this form for sample manifest form.)

EPA ID Number: CAL000129317

Name of organization: AIR LIQUIDE AMERICA CORP

From January 1, 2003 through December 31, 2003,  
the Department of Toxic Substances Control recorded  
the number of California Manifests shown at the right  
using the EPA ID printed above.

Non-recycled: 1

Recycled: 2

(NOTE: There is no fee for solely recycled manifests.)

### Manifest Fee Calculation:

- a. Enter the total number of **non-recycled** manifests from above... 1
- b. How many of the **non-recycled** manifests listed on Line a. are  
non-recycled air compliance solvent manifests..... 0 X \$3.50 = \$ 0.00
- c. Subtract the number of manifests on Line b. from Line a. .... 1 X \$7.50 = \$ 7.50
- d. No fee due for **recycled** manifests..... \$ 0.00
- e. Total of Line b. + Line c. .... = \$ 7.50

Note: The manifest count on Lines b. and c. should equal the count on Line a.

## INSTRUCTIONS FOR COMPLETING SCHEDULE A

- For lines a. – e. above, enter the numbers requested for each line.
  - For line b. multiply the number of manifests by \$3.50 and record the dollar amount.
  - For line c. multiply the number of manifests by \$7.50 and record the dollar amount.
  - For line e. add dollar amounts of lines b. and c. This total is the manifest fees due for the EPA ID number shown at the top of the page.
- For this assessment there are three types of manifests: non-recycled, recycled and air compliance solvents manifests. Manifests used *solely* for recycled waste will have a handling code reported as "01" or "R01" in item K on the manifest form (see circled area on manifest sample on the back of this form). All wastes listed on a manifest must have handling codes of "01" or "R01" to be counted as a solely recycled manifest. You need to pay manifest fees only for non-recycled manifests. There is no fee for recycled manifests.
- If you believe the manifest totals shown in the box above are incorrect, you may use the manifest totals from your own files to calculate the fee. However, please be aware that any difference between the amount you report and the amount printed above is subject to audit by DTSC.
- On January 1, 1999 many businesses were required to switch from petroleum-based solvents to air compliance solvents (also called water-based cleaners). The fee for manifests used solely for hazardous waste derived from air compliance solvents was reduced from \$7.50 to \$3.50. Most air compliance solvent waste is now recyclable. Manifests used to ship air compliance solvents that were recycled should not be charged \$3.50. The Manifest Fee Calculation above includes air compliance solvent manifests as part of the non-recycled manifest count. Businesses that do not recycle their air compliance solvent waste who desire to use the reduced \$3.50 fee must use their internal records to identify manifests used solely for air compliance solvent wastes.

**COPY**

## SCHEDULE A – MANIFEST FEE CALCULATION SHEET (2002 Manifests)

(See back of this form for sample manifest form.)

EPA ID Number: CAL000021160 Name of organization: AIR LIQUIDE AMERICA CORP L.P.

From January 1, 2002 through December 31, 2002,  
the Department of Toxic Substances Control recorded  
the number of California Manifests shown at the right  
using the EPA ID printed above.

Non-recycled: 4

Recycled: 5

(NOTE: There is no fee for solely recycled manifests.)

### Manifest Fee Calculation:

- a. Enter the total number of **non-recycled** manifests from above... 4
- b. How many of the **non-recycled** manifests listed on Line a. are  
non-recycled air compliance solvent manifests..... 0 X \$3.50 = \$ 0
- c. Subtract the number of manifests on Line b. from Line a. .... 4 X \$7.50 = \$ 30
- d. No fee due for **recycled** manifests..... \$ 0.00
- e. Total of Line b. + Line c. .... = \$ 30.00
- Note: The manifest count on Lines b. and c. should equal the count on Line a.

## INSTRUCTIONS FOR COMPLETING SCHEDULE A

- For lines a. – e. above, enter the numbers requested for each line.
  - For line b. multiply the number of manifests by \$3.50 and record the dollar amount.
  - For line c. multiply the number of manifests by \$7.50 and record the dollar amount.
  - For line e. add dollar amounts of lines b. and c. This total is the manifest fees due for the EPA ID number shown at the top of the page.
- For this assessment there are three types of manifests: non-recycled, recycled and air compliance solvents manifests. Manifests used *solely* for recycled waste will have a handling code reported as "01" or "R01" in item K on the manifest form (see circled area on manifest sample on the back of this form). All wastes listed on a manifest must have handling codes of "01" or "R01" to be counted as a solely recycled manifest. You need to pay manifest fees only for non-recycled manifests. There is no fee for recycled manifests.
- If you believe the manifest totals shown in the box above are incorrect, you may use the manifest totals from your own files to calculate the fee. However, please be aware that any difference between the amount you report and the amount printed above is subject to audit by DTSC.
- On January 1, 1999 many businesses were required to switch from petroleum-based solvents to air compliance solvents (also called water-based cleaners). The fee for manifests used solely for hazardous waste derived from air compliance solvents was reduced from \$7.50 to \$3.50. Most air compliance solvent waste is now recyclable. Manifests used to ship air compliance solvents that were recycled should not be charged \$3.50. The Manifest Fee Calculation above includes air compliance solvent manifests as part of the non-recycled manifest count. Businesses that do not recycle their air compliance solvent waste who desire to use the reduced \$3.50 fee must use their internal records to identify manifests used solely for air compliance solvent wastes.

## SCHEDULE B – FEES SUMMARY SHEET

(See back of this form for complete instructions.)

All completed forms and appropriate fees must be submitted **not later than 30 days** from the date of receipt.

### A. EPA ID NUMBER VERIFICATION FEE (July 1, 2002 through June 30, 2003)

- 1 Name of your organization: Air Liquide America
- 2 Enter the total number of California employees in your entire organization: 271  
(Please read instructions for Line 2 on the back of this form)

Number of Employees	1 – 49	50 – 74	75 – 99	100 – 249	250 – 499	500 or more
EPA ID Fee Rate	NO FEE	\$150	\$175	\$200	\$225	\$250

(Total EPA ID Number Verification Fees not to exceed \$5000)

- 3 Enter the EPA ID Number Verification Fee rate from the table above: \$ 225
- 4 Enter the total number of **permanent** EPA ID numbers held by your organization: 1  
(NOTE Attach a VQ form and Schedule A for **each** permanent EPA ID number you are reporting  
Numbers that begin with "CAC" should not be included in your total on Line 4. See instructions.)
- 5 Multiply Line 3 by Line 4. = \$ 225
- 6 **TOTAL** EPA ID Number Verification Fee due (Enter the dollar amount from Line 5 above  
OR \$5000, whichever amount is less.): \$ 225

### B. MANIFEST FEE (January 1, 2002 through December 31, 2002)

- 1 Enter the dollar amount from Line e on your Schedule A – Manifest Fee Calculation Sheet.  
(If you are reporting more than one EPA ID number, enter the **TOTAL** of the dollar amounts from  
Line e on **all** your Schedule A – Manifest Fee Calculation Sheets.) \$ 30

### C. GRAND TOTAL OF EPA ID NUMBER VERIFICATION FEES AND MANIFEST FEES

1. **Add Line A6 and Line B1**, then enter the total dollar amount. 255  
It is not uncommon to not owe fees. You are still required to complete and submit all forms.  
**If fee is due, please make your check payable to "DTSC" for the total amount on this line:** = \$ 255  
Please write one of your EPA ID numbers on your check.

To pay your fees via **credit card**, complete the enclosed "EPA ID and Manifest Fee Credit Card Payment Form".

I hereby certify under penalty of perjury that the information on the Verification Questionnaire(s), Schedule A(s)  
and Schedule B is true and correct

Signature of Preparer: [Signature]  
Name (please print) Josh Mermelstein

Title: Plant Specialist  
Date: 6/12/03 Phone: 5624645241

THIS SECTION FOR DEPARTMENT USE ONLY			
Check No	\$AMOUNT	DATE	CID NO.
12560055	12560092	12560065	
12560035	12560091	AMOUNT DUE	
12560075	12560096	PRIMARY ID #	

## 2003 VERIFICATION QUESTIONNAIRE

(See back of this form for instructions.)

The Department of Toxic Substances Control (DTSC) requires that all enclosed forms be completed and returned with appropriate fees **not later than 30 days from the date of receipt**. Instructions for all forms are included.

AIR LIQUIDE AMERICA CORP  
8832 DICE RD  
SANTA FE SPRINGS CA 90670-0000

If your mailing address has changed, please  
**PRINT or TYPE** the correct address below:

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

### DO NOT ALTER INFORMATION IN THIS AREA

1. EPA ID Number: CAL000021160  
2. Location address: 8832 DICE ROAD  
SANTA FE SPRINGS CA 90670-0000

If your business has moved, call GISS.

#### 3. COMPANY OWNER INFO:

**NOTE:** California EPA ID numbers issued by DTSC may not be transferred to another owner. If the ownership of your organization has changed, please call GISS for assistance. Do NOT fill in new owner information below.

AIR LIQUIDE AMERICA CORP  
2700 POST OAK BLVD  
HOUSTON TX 77056-0000  
(000)000-0000

Company owner or Corp. name: AIR LIQUIDE AMERICA LP

Address: SAME - NO CHANGE

City/State/Zip: NO CHANGE

Telephone: 713 624 8000

Date of ownership change: NO CHANGE

4. ☐ My new EPA ID number is \_\_\_\_\_

#### 5. COMPANY NAME:

AIR LIQUIDE AMERICA CORP

If printed company name is incorrect, please provide correct name:

Company name: AIR LIQUIDE AMERICA LP

#### 6. CONTACT INFO:

If printed contact is incorrect or blank, please provide correct information:

FOIA ex 6, Personal Privacy  
8832 DICE RD  
SANTA FE SPRINGS CA 90670-0000  
(000)000-0000

FACILITY MGR

Name/Title: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Telephone: FOIA ex 6, Personal Privacy

Business email address: \_\_\_\_\_

#### 7. SIC CODE (4 digits):

0000

If printed SIC Code is incorrect or blank, please provide correct information:

5169

8. ☐ Check here if you wish to CANCEL the EPA ID number listed on Line 1. (See reverse side.)

9. ☐ Check if you would like to verify online in 2004. We will use the email address above.

10. ☐ Check if your business has a total of 49 or fewer employees in all business locations in California. This will help us determine if we should send you fee forms in 2004.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at [www.dtsc.ca.gov](http://www.dtsc.ca.gov).

♻️ Printed on Recycled Paper

FOIA ex 6, Personal Privacy

16-24-4424  
1220  
0732410485

1981

DATE 6/12/03

PAY TO THE  
ORDER OF

DEPT. OF TOXIC SUBSTANCE CONTROL \$ 30.00

THIRTY DOLLARS AND NO/100 DOLLARS



Wells Fargo Bank, N.A.  
California  
www.wellsfargo.com

Valued  
Customer  
Since 1995

FOIA ex 6, Personal Privacy

MEMO EPA ID # CAL 000021160

FOIA ex 6, Personal Privacy

MP

DICE 01003

California Permanent Identification Numbers  
Advance Notice

Businesses that generate, transport, or handle hazardous waste in California are generally required to have either a U.S. EPA or California identification (ID) number. Historically, those businesses needing a temporary or permanent California ID Number have been able to obtain those ID numbers by telephone. However, the state budget crisis and resulting reduction in staff has negatively impacted the Department of Toxic Substances Control (DTSC) Generator Information Services Section's (GISS) ability to meet the volume of ID Number requests over the telephone. This has resulted in long hold times and a high number of system busy conditions during peak times.

In an effort to provide better customer service to businesses in California, GISS is redirecting resources to the more time sensitive temporary California ID Numbers. To this end, GISS will stop issuing permanent California ID Numbers (those that begin with CAL) by telephone effective July 15, 2003. From that date forward, permanent California ID Numbers must be requested on DTSC Form 1358 by mail, email, or fax. This form is available for downloading from the DTSC web site at [www.dtsc.ca.gov](http://www.dtsc.ca.gov) under Frequently Requested Information and will also be made available from a number of other sources.

DTSC Form 1358 can be submitted:

By mail to:  
DTSC GISS  
P.O. Box 806  
Sacramento, CA 95812-0806

By email to:  
[idnumber@dtsc.ca.gov](mailto:idnumber@dtsc.ca.gov)  
Please use "ID Number Request" as the subject.

By fax to:  
916-255-4703

Please do not submit cover letters or other documents with Form 1358.

Temporary California ID Numbers (those beginning with CAC) will continue to be issued by telephone at 800-6186942 or 916-255-1136.

**DICE 01004**



City of Santa Fe Springs Fire Department  
Fire Protection Division - Environmental Protection Division  
11300 Greenstone Avenue, Santa Fe Springs, CA 90670-4619  
(562) 944-9713 FAX (562) 941-1817 fire@santafesprings.org

INVOICE

*copy*

AIR LIQUIDE AMERICA CORP  
8832 DICE  
SANTA FE SPRINGS CA 90670

FOIA ex 6, Personal Privacy

Period Covered: 07/01/2001-06/30/2002  
Permit No: 600094  
Today's Date: 11/06/2001  
Payment Due Date: 12/15/2001

A PENALTY WILL BE ASSESSED FOR  
TOTAL FEES NOT RECEIVED BY THE DUE  
DATE ABOVE

For Facility Located at:

AIR LIQUIDE  
AIR LIQUIDE AMERICA CORP  
8832 DICE  
SANTA FE SPRINGS, CA 90670

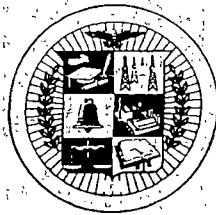
<b>CUPA PROGRAM ELEMENTS</b>		
Hazardous Materials Fee		\$2,835.00
Hazardous Materials Volume Fee		\$1,512.00
Hazardous Waste Generator Fee		\$715.00
Tier Permit Fee		\$0.00
Underground Storage Tank Fee		\$600.00
CalARP Fee		\$0.00
Aboveground Storage Tanks		\$0.00
<b>STATE SERVICE FEES</b>		
Underground Storage Tank Service Fee	<input type="checkbox"/> (Exempt)	\$16.00
CalARP Service Fee	<input type="checkbox"/> (Exempt)	\$0.00
Program Oversight Fee	<input type="checkbox"/> (Exempt)	\$17.50
<b>OTHER</b>		
Industrial Waste Permit Fee		\$352.00
Rain Diversion Fee		\$0.00
Fire Permit Fee		\$1,874.00
Stormwater Fee		\$0.00

This fee is due and payable upon receipt. Please indicate the permit number 600094 on your check. Make check payable to 'CITY OF SANTA FE SPRINGS' and remit to:

City of Santa Fe Springs Fire Department  
11300 Greenstone Avenue  
Santa Fe Springs, CA 90670

Above Total: \$7,915.50  
Late Fee: \$0.00  
Amount Paid: \$0.00  
**TOTAL AMOUNT DUE: \$7,915.50**

DICE 01005



## Headquarters Fire Station

11300 Greenstone Ave • CA • 90670-4619 • (562) 944-9713 • Fax (562) 941-1817 • www.santafesprings.org

### 2001/2002 Annual Unified Program Certification

Dear Business Owner:

In addition to other notification and update requirements, Chapter 6.95 of the California Health and Safety Code requires your Hazardous Materials Business Plan (HMBP) to be reviewed and updated annually. If you have made changes to your HMBP, please check the "Changes Have Been Made" box(es) below. The Fire Department will send you all of the appropriate forms necessary to update your status. If no changes have been made you must check the box and sign below. This form will serve as your 2001/2002 official update.

This form must be signed by the business owner or officially designated representative. Check the appropriate box(es) and return to the Fire Department by **December 15, 2001** along with the required annual CUPA fees shown on the attached invoice. Failure to do so will result in additional fines being assessed. The minimum late penalty fine is \$300.00 dollars.

#### **CHECK THE APPROPRIATE BOX AND SIGN THE FORM BELOW**

☒ **CHANGES HAVE BEEN MADE:**

- ☒ **Emergency Contacts** – These are the two main contacts and their emergency phone numbers that the Fire Department will use in the event of an emergency.
- ☐ **Chemical Inventory** – The types and/or quantities of chemicals, hazardous liquids, solids, compressed gases, or waste have been changed.
- ☐ **Facility Plot Plan** – This is the diagram of your facility, which indicates the storage and use location of all the hazardous materials listed in the inventory.

☐ **NO CHANGES (all items must be correct):**

- 1) The most recent inventory statement is complete, accurate, and up to date
- 2) There has been no change in the quantity of hazardous material as reported last year.
- 3) No hazardous materials subject to the inventory requirement are being handled that are not listed on the inventory statement on file.

I certify under penalty of law that our business has reviewed the current HMBP on file with the Santa Fe Springs Fire Department and certify the submitted information is true, accurate and complete.

**NOTE:** Businesses that use the HMBP to satisfy EPCRA reporting requirements may not use a certification statement – it is not recognized under federal law. These businesses must annually resubmit their inventory.

AIR LIQUIDE AMERICA CORPORATION

Business Name

8832 DICE ROAD, SANTA FE SPRINGS, CA 90670

Facility Address

AARON L. TESCH

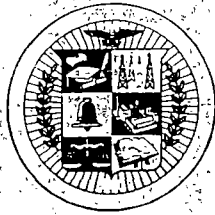
Print Name of Owner/Operator

Garon L. Tesch  
Signature of Owner/Operator

11/16/01

Date

**DICE 01006**



## Headquarters Fire Station

11300 Greenstone Ave • CA • 90670-4619 • (562) 944-9713 • Fax (562) 941-1817 • [www.santafesprings.org](http://www.santafesprings.org)

### Environmental Protection Division Customer Service Survey 2001/2002

Our goal is to provide you with the best possible service and your comments are vital to our success. Please help us serve you and the community better by taking a few minutes to answer the following questions:

What was the nature of your contact with us?

- ☒ Inspection   ☐ Telephone inquiry   ☐ Meetings   ☐ Visited our office   ☐ Correspondence  
☐ Workshop

Program elements applying to your business:

- ☒ Hazardous Materials   ☒ Hazardous Waste/Tiered Permitting   ☒ Underground Tanks   ☐ CalARP  
☒ Fire Code   ☒ Aboveground Tanks   ☐ Other/Don't Know \_\_\_\_\_

STATEMENTS	Check as appropriate			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Staff was courteous and helpful.	X			
Staff provided information useful to our business.	X			
Information was provided promptly.	X			
My overall experience was positive.	X			
CUPA permit process and forms are user-friendly & instructions clear.		X		
<b>Would your business utilize:</b>				
More environmental workshops offered for businesses?	X			
A City environmental website?	X			
A newsletter on regional and state environmental issues?	X			

Please indicate any program elements you would like to improve: \_\_\_\_\_

Comments: \_\_\_\_\_

If you have questions or additional comments, please do not hesitate to contact  
the Fire Department at (562) 944-9713 or e-mail at [dave.klunk@sfsfire.org](mailto:dave.klunk@sfsfire.org)  
This form may be mailed or faxed back to the Fire Department at the address and fax number above

DICE 01007

**UNIFIED PROGRAM CONSOLIDATED FORM**  
**BUSINESS OWNER/OPERATOR IDENTIFICATION**

*Copy  
 0216: Mailed  
 3/8/02*

☐ NEW BUSINESS ☐ OUT OF BUSINESS ☒ REVISE/UPDATE (EFFECTIVE 01/01/02)

PAGE 1 OF 1

**I. IDENTIFICATION**

FACILITY ID#	19049600094	BEGINNING DATE	01/01/02	ENDING DATE	12/31/02
BUSINESS NAME	AIR LIQUIDE AMERICA CORP.		BUSINESS PHONE	562 945 1383	
BUSINESS SITE ADDRESS	8832 DICE ROAD				
CITY	SANTA FE SPRINGS	CA	ZIP CODE	90670	
DUN & BRADSTREET	05-981-9680	SIC CODE (4-digit #)	2813		
COUNTY	LOS ANGELES		UNINCORPORATED	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
BUSINESS OPERATOR NAME	AARON L. TESCH	BUSINESS OPERATOR PHONE	562 464 5242		

**II. BUSINESS OWNER**

OWNER NAME	AIR LIQUIDE AMERICA	OWNER PHONE	713 624 8000
OWNER MAILING ADDRESS	2700 POST OAK BLVD		
CITY	HOUSTON	STATE	TX
ZIP CODE	77056		

**III. ENVIRONMENTAL CONTACT**

CONTACT NAME	AARON L. TESCH	CONTACT PHONE	562 464 5242
CONTACT MAILING ADDRESS	8832 DICE ROAD		
CITY	SANTA FE SPRINGS	STATE	CA
ZIP CODE	90670		

**PRIMARY**

**IV. EMERGENCY CONTACTS**

**SECONDARY**

NAME	AARON L. TESCH	NAME	LINDOLFO CLEMENTE
TITLE	PLANT MANAGER	TITLE	PRODUCTION LEAD
FOIA ex 6, Personal Privacy		FOIA ex 6, Personal Privacy	
PAGER #	n/a	PAGER #	n/a

**V. ADDITIONAL LOCALLY COLLECTED INFORMATION**

DESCRIPTION OF BUSINESS	INDUSTRIAL GASES
-------------------------	------------------

**MAILING/BILLING INFORMATION**

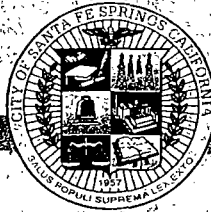
ADDRESS	8832 DICE ROAD	CITY	SANTA FE SPRINGS	STATE	CA	ZIP CODE	90670
---------	----------------	------	------------------	-------	----	----------	-------

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE	DATE	NAME OF DOCUMENT PREPARER
<i>Aaron L. Tesch</i>	3/8/02	AARON L. TESCH
NAME OF SIGNER (print)	TITLE OF SIGNER	
AARON L. TESCH	PLANT MANAGER	

OFFICIAL USE ONLY	UP Form	HW	HM	ARR	AST	UST	TP	CUPA	PA
INSPECTOR	DISTRICT	DATE OF INSP.	DIVISION	BATTALION	STATION				

**DICE 01008**



# City of Santa Fe Springs

Headquarters Fire Station

11300 Greenstone Ave. • CA • 90670-4619 • (562) 944-9713 • Fax (562) 941-1817 • [www.santafesprings.org](http://www.santafesprings.org)

March 4, 2002

Aaron Tesch  
Air Liquide  
8832 Dice  
Santa Fe Springs, CA 90670

Re: Hazardous Materials Business Plan for 8832 Dice

Dear Mr. Tesch:

Thank you for completing your 2001/2002 Annual Unified Program Certification. You reported changes to your Hazardous Materials Business Plan. Please complete the enclosed forms and return by April 4, 2002. If you have any questions or need further assistance, please contact Barbara Chapman, Environmental Clerk II, at (562) 944-9713 ext. 138.

Sincerely,

Neal Welland  
Fire Chief

NW/drk/bc

Enclosure

DICE 01009



**AIR LIQUIDE**

2200.24

February 19, 1997

County of San Bernardino  
385 N. Arrowhead Avenue, 2<sup>nd</sup> Floor  
San Bernardino, CA 92415-0153

RE: LAI PROPERTIES, INC.  
AIR LIQUIDE AMERICA CORPORATION

Dear Sir:

I am in receipt of a Release of Notice of Pendency of Administrative Proceedings filed by the County Fire Department - Hazardous Materials Division in San Bernardino County. The Release was forwarded in care of the law firm of Hanna & Morton, 600 Wilshire Blvd., 17<sup>th</sup> Floor, Los Angeles, CA 90017.

Please be advise that all future correspondence from San Bernardino County should be addressed as follows:

Air Liquide America Corporation  
P. O. Box 460229  
Houston, Texas 77056-8229

Should you have any questions, please feel free to contact me at 713-624-8388.

Sincerely,

Dorina Dailey  
Senior Paralegal

/me

**UNIFIED PROGRAM CONSOLIDATED FORM**  
**BUSINESS OWNER/OPERATOR IDENTIFICATION**

☐ NEW BUSINESS ☐ OUT OF BUSINESS ☐ REVISE/UPDATE (EFFECTIVE / / ) PAGE OF

☐ NEW BUSINESS ☐ OUT OF BUSINESS ☐ REVISE/UPDATE (EFFECTIVE / / ) PAGE OF

### I. IDENTIFICATION

FACILITY ID# (Fire Dept. use only)	1	9	0	4	9								1	BEGINNING DATE	100	ENDING DATE	101
BUSINESS NAME														3	BUSINESS PHONE	102	
BUSINESS SITE ADDRESS																	103
CITY														104	CA	ZIP CODE	105
DUN & BRADSTREET														106	SIC CODE (4 digit #)	107	
COUNTY	LOS ANGELES													108	UNINCORPORATED	<input type="checkbox"/> Yes <input type="checkbox"/> No	133a
BUSINESS OPERATOR NAME														109	BUSINESS OPERATOR PHONE	110	

## II. BUSINESS OWNER

OWNER NAME	111	OWNER PHONE	112
OWNER MAILING ADDRESS			113
CITY	114	STATE	115
		ZIP CODE	116

### III. ENVIRONMENTAL CONTACT

CONTACT NAME	117	CONTACT PHONE	118
CONTACT MAILING ADDRESS			119
CITY	120	STATE	121
		ZIP CODE	122

-PRIMARY-	IV. EMERGENCY CONTACTS	-SECONDARY-
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NAME	123	NAME	128
TITLE	124	TITLE	129
BUSINESS PHONE	125	BUSINESS PHONE	130
24-HOUR PHONE	126	24-HOUR PHONE	131
PAGER #	127	PAGER #	132

#### V. ADDITIONAL LOCALLY COLLECTED INFORMATION

DESCRIPTION OF BUSINESS	133b
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## MAILING/ BILLING INFORMATION

ADDRESS	133d	CITY	133e	STATE	133f	ZIP CODE	133g
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Certification Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE	DATE	134	NAME OF DOCUMENT PREPARER	135
NAME OF SIGNER (print)	136	TITLE OF SIGNER	137	

OFFICIAL USE ONLY		UP Form	HW	HM	ARP	AST	UST	TP	CUPA	PA
INSPECTOR	DISTRICT	DATE OF INSP			DIVISION		BATTALION		STATION	

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 1 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D7 (#45)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ACETONE

TRADE SECRET

☐ Yes ☒ No

If Subject to EPCRA, refer to instructions

COMMON NAME

ACETONE

EHS\*

☐ Yes ☒ No

CAS #

67-64-1

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FL-1A

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

6000

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☒ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

6000

MAXIMUM DAILY  
AMOUNT

6000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☒ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	ACETONE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	67-64-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here



# HAZARDOUS MATERIALS INVENTORY

(one page per material per building or area)

Page 2 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) C6 (#52), D6 (#20)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ACETYLENE

TRADE SECRET

☐ Yes ☒ No

If Subject to EPCRA, refer to instructions

COMMON NAME

ACETYLENE

EHS\*

☒ Yes ☐ No

CAS #

74-86-2

If EHS is "Yes", all amounts below must be in lbs.

HAZARD CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

330

ADDED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☒ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

6100

MAXIMUM DAILY  
AMOUNT

6100

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Building

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	ACETYLENE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	74-86-2
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 3 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

B4 (#39), C1

## II. CHEMICAL INFORMATION

CHEMICAL NAME

COMPRESSED AIR

TRADE SECRET ☐ Yes ☒ No

If Subject to EPCRA, refer to instructions

COMMON NAME

COMPRESSED AIR

EHS\* ☐ Yes ☒ No

CAS #

N/A

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

100,000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

150000

MAXIMUM DAILY AMOUNT

150000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT.	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	100.00% AIR	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 4 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC	
CHEMICAL LOCATION	CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA
FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4	MAP# (optional) GRID# (optional) B2, E1, H4

## II. CHEMICAL INFORMATION

CHEMICAL NAME ARGON GAS	TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject to EPCRA, refer to instructions
COMMON NAME ARGON GAS	EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
CAS # 7440-37-1	*If EHS is "Yes", all amounts below must be in lbs.

### FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only) <input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE	RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CURIES
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS	LARGEST CONTAINER 110000	
DEFERRED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Health		
AVERAGE DAILY AMOUNT 200000	MAXIMUM DAILY AMOUNT 200000	ANNUAL WASTE AMOUNT 0
UNITS* (Check one item only) <input type="checkbox"/> GALLONS <input checked="" type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS	STATE WASTE CODE DAYS ON SITE 365	
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tank <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other. <input type="checkbox"/> Tank Inside Building <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon		

STORAGE PRESSURE	<input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT
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STORAGE TEMPERATURE	<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC
---------------------	--

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 100 00%	ARGON	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-37-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

### ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 5 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

☐ Yes ☒ No

EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

E6, E7

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ARGON REFRIGERATED LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ARGON REFRIGERATED LIQUID

EHS\*

☐ Yes ☒ No

CAS #

7440-37-1

\*If EHS is "Yes", all amounts below must be in lbs.

HAZARD CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

48000

ADDITIONAL HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

48000

MAXIMUM DAILY AMOUNT

48000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container Check all that apply)

☒ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☒ d CRYOGENIC

% WWT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	ARGON	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-37-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01016

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 6 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional) 1 GRID# (optional) D7 (#8,#18), E7 (#7)

## II. CHEMICAL INFORMATION

CHEMICAL NAME CALCIUM CARBIDE TRADE SECRET ☐ Yes ☒ No  
If Subject to EPCRA, refer to instructions

COMMON NAME CALCIUM CARBIDE EHS\* ☐ Yes ☒ No

CAS # 75-20-7 \*If EHS is Yes, all amounts below must be in lbs.

HAZARD CODE HAZARD CLASSES (Complete if required by CUPA)

FS

HAZARDOUS MATERIAL TYPE (Check one item only) ☒ PURE ☐ MIXTURE ☐ WASTE RADIOACTIVE ☐ Yes ☒ No CURIES

PHYSICAL STATE (Check one item only) ☒ SOLID ☐ LIQUID ☐ GAS LARGEST CONTAINER 5500

ADDITIONAL HAZARD CATEGORIES (Check all that apply) ☒ Fire ☒ Reactive ☐ Pressure Release ☐ Acute Health ☐ Chronic Health

AVERAGE DAILY AMOUNT 290000 MAXIMUM DAILY AMOUNT 290000 ANNUAL WASTE AMOUNT 0 STATE WASTE CODE 0

UNITS\* (Check one item only) ☐ GALLONS ☐ CUBIC FEET ☒ POUNDS ☐ TONS DAYS ON SITE 365

Storage Container (Check all that apply) ☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tank ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Building ☐ Carboy ☐ Box ☒ Tote Bin  
☐ Steel Drum ☐ Silo ☐ Cylinder ☐ Tank Wagon

STORAGE PRESSURE ☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE ☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	CALCIUM CARBIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	75-20-7
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 7 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) E1, H4

## II. CHEMICAL INFORMATION

CHEMICAL NAME  
CARBON DIOXIDE GAS

TRADE SECRET ☐ Yes ☒ No  
If Subject to EPCRA, refer to instructions

COMMON NAME  
CARBON DIOXIDE GAS

EHS\* ☐ Yes ☒ No

CAS #  
124-38-9

\*If EHS is "Yes", all amounts below must be in lbs.

HAZARD CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only) ☒ PURE ☐ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only) ☐ SOLID ☐ LIQUID ☒ GAS

LARGEST CONTAINER  
50

ADDITIONAL HAZARD CATEGORIES (Check all that apply) ☐ Fire ☐ Reactive ☒ Pressure Release ☐ Acute Health ☐ Chronic Health

AVERAGE DAILY AMOUNT  
17000

MAXIMUM DAILY AMOUNT  
17000

ANNUAL WASTE AMOUNT  
0

STATE WASTE CODE  
0

UNITS\* (Check one item only) ☐ GALLONS ☐ CUBIC FEET ☒ POUNDS ☐ TONS

DAYS ON SITE  
365

Storage Container (Check all that apply) ☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tank ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Building ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☒ Cylinder ☐ Tank Wagon

STORAGE PRESSURE ☐ a AMBIENT ☒ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE ☐ a AMBIENT ☐ b ABOVE AMBIENT ☒ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	CO2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight of non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 8 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - EPCRA ☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

E3 (#60)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

CARBON MONOXIDE

TRADE SECRET ☐ Yes ☒ No  
If Subject to EPCRA, refer to instructions

COMMON NAME

CARBON MONOXIDE

EHS\* ☐ Yes ☒ No

CAS #

630-08-0

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

175

ADDED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

6000

MAXIMUM DAILY  
AMOUNT

10000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Building

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	CARBON MONOXIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	630-08-0
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION.

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 9 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

B4 (#41)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

HELIUM LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject to EPCRA, refer to instructions

COMMON NAME

HELIUM LIQUID

EHS\*

☐ Yes ☒ No

CAS #

7440-59-7

\*If EHS is "Yes" all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

13000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

13000

MAXIMUM DAILY  
AMOUNT

13000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Building

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☒ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☒ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	LIQUID HELIUM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01020



# HAZARDOUS MATERIALS INVENTORY

HAZARDOUS MATERIALS

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 10 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional) D2 (#33)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ETHYLENE OXIDE MIX (OXYFUME 2002)

TRADE SECRET ☐ Yes ☒ No  
If Subject to EPCRA, refer to instructions

COMMON NAME

ETHYLENE OXIDE

EHS\* ☒ Yes ☐ No

CAS #

75-21-8

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL TYPE (Check one item only)

☐ PURE ☒ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID ☐ LIQUID ☒ GAS

LARGEST CONTAINER

400 CF

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire ☒ Reactive ☐ Pressure Release ☐ Acute Health ☐ Chronic Health

AVERAGE DAILY AMOUNT

273

MAXIMUM DAILY AMOUNT

273

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

(Check one item only)

☐ GALLONS ☐ CUBIC FEET ☒ POUNDS ☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tank ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Building ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☒ Cylinder ☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT ☒ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 10.00%	ETHYLENE OXIDE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	75-21-8
2 53.00%	HCFC 124	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	63933-10-3
3 27.00%	HCFC 2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	124-38-9
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

## HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 11 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional) D2 (#33)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ETHYLENE OXIDE MIX (CARBOXIDE)

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

ETHYLENE OXIDE MIXTURE

EHS\* ☒ Yes ☐ No

CAS #

75-21-8

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE ☒ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID ☐ LIQUID ☒ GAS

LARGEST CONTAINER  
400

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire ☒ Reactive ☒ Pressure Release ☒ Acute Health ☒ Chronic Healt

AVERAGE DAILY  
AMOUNT

116

MAXIMUM DAILY  
AMOUNT

116

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS ☐ CUBIC FEET ☒ POUNDS ☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tan ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Buildin ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☒ Cylinder ☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT ☒ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 8.50%	ETHYLENE OXIDE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	75-21-8
2 91.50%	CARBON DIOXIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	124-38-9
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 12 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) B4 (#42), C1, E1	
II. CHEMICAL INFORMATION									
CHEMICAL NAME HELIUM GAS						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject to EPCRA, refer to instructions			
COMMON NAME HELIUM GAS						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS # 7440-59-7						*If EHS is "Yes", all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only)		<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only)		<input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS		LARGEST CONTAINER 200000					
FED HAZARD CATEGORIES (Check all that apply)		<input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Health							
AVERAGE DAILY AMOUNT 0		MAXIMUM DAILY AMOUNT 600000		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE 0			
UNITS* (Check one item only)		<input type="checkbox"/> GALLONS <input checked="" type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS				DAYS ON SITE 365			
Storage Container (Check all that apply)		<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon							
STORAGE PRESSURE		<input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT							
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d. CRYOGENIC							
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#	
1	99.90%	HELIUM				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		7440-59-7	
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 13 of 46

## I: FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

## II: CHEMICAL INFORMATION

CHEMICAL NAME

HYDROGEN GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

HYDROGEN GAS

EHS\*

☒ Yes ☐ No

CAS #

1333-74-0

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

120000 CF

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Healt

AVERAGE DAILY  
AMOUNT

1560

MAXIMUM DAILY  
AMOUNT

1560

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	HYDROGEN	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1333-74-0
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 14 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) <b>AIR LIQUIDE CORPORATION AMERIC</b>									
CHEMICAL LOCATION							CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA		
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		GRID# (optional) E2, E3			
II. CHEMICAL INFORMATION									
CHEMICAL NAME <b>METHANE</b>							TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions		
COMMON NAME <b>METHANE</b>							EHS* <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
CAS # <b>74-82-8</b>							*If EHS is "Yes" all amounts below must be in lbs.		
FIRE CODE HAZARD CLASSES (Complete if required by CUPA) <b>FG</b>									
HAZARDOUS MATERIAL TYPE (Check one item only)		<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only)		<input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS		LARGEST CONTAINER <b>335</b>					
FED HAZARD CATEGORIES (Check all that apply)		<input checked="" type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Healt							
AVERAGE DAILY AMOUNT <b>0</b>		MAXIMUM DAILY AMOUNT <b>10000</b>		ANNUAL WASTE AMOUNT <b>0</b>		STATE WASTE CODE			
UNITS* (Check one item only)		<input type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input checked="" type="checkbox"/> POUNDS <input type="checkbox"/> TONS				DAYS ON SITE <b>365</b>			
Storage Container (Check all that apply)		<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon							
STORAGE PRESSURE		<input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT							
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b. ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC							
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#	
1	99.90%	METHANE				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		74-82-8	
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION:									
If EPCRA, Please Sign Here									

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 15 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

C1, E1, F1, H4, I4

## II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROGEN GAS

TRADE SECRET ☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NITROGEN GAS

EHS\*

☐ Yes ☒ No

CAS #

7727-37-9

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

150000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Healt

AVERAGE DAILY  
AMOUNT

300000

MAXIMUM DAILY  
AMOUNT

300000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a. AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	NITROGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION.

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 16 of 46

I. FACILITY INFORMATION										
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC										
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA				
FACILITY ID#		19		049		600094		MAP# (optional)		GRID# (optional)
II. CHEMICAL INFORMATION										
CHEMICAL NAME NITROGEN REFRIGERATED LIQUID						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject to EPCRA, refer to instructions				
COMMON NAME LIQUID NITROGEN						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
CAS# 7727-37-9						*If EHS is "Yes", all amounts below must be in lbs.				
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)										
HAZARDOUS MATERIAL TYPE (Check one item only)		<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES				
PHYSICAL STATE (Check one item only)		<input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS		LARGEST CONTAINER 11000						
FED HAZARD CATEGORIES (Check all that apply)		<input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input checked="" type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Health								
AVERAGE DAILY AMOUNT 17000		MAXIMUM DAILY AMOUNT 17000		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE 0				
UNITS* (Check one item only)		<input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS		DAYS ON SITE 365						
Storage Container (Check all that apply)		<input checked="" type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon								
STORAGE PRESSURE		<input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT								
STORAGE TEMPERATURE		<input type="checkbox"/> a. AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input checked="" type="checkbox"/> d CRYOGENIC								
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#			
1	99.90%	NITROGEN LIQUID				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		7727-37-9		
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.										
ADDITIONAL LOCALLY COLLECTED INFORMATION										
If EPCRA, Please Sign Here										

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 17 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

E2 (#31)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROUS OXIDE LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NITROUS OXIDE LIQUID

EHS\*

☐ Yes ☒ No

CAS #

10024-97-2

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

13000

ED HAZARD CATEGORIES

(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY

AMOUNT

13000

MAXIMUM DAILY

AMOUNT

13000

ANNUAL WASTE

AMOUNT

0

STATE WASTE

CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON

SITE 365

Storage Container

(Check all that apply)

☒ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a. AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	NITROUS OXIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10024-97-2
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here



# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 18 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D2 (#33)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

SULFUR HEXAFLUORIDE

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

SULFUR HEXAFLUORIDE

EHS\* ☐ Yes ☒ No

CAS #

2551-62-4

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

287

RED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Healt

AVERAGE DAILY AMOUNT

17250

MAXIMUM DAILY AMOUNT

17250

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

0

Storage Container Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b. ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	SULFUR HEXAFLUORIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2551-62-4
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION:

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 19 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

E4 (#56), E6, C1, I4

## II. CHEMICAL INFORMATION

CHEMICAL NAME

OXYGEN GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

OXYGEN GAS

EHS\*

☐ Yes ☒ No

CAS #

7782-44-5

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

OXIDIZER

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

140000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☒ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Healt

AVERAGE DAILY  
AMOUNT

200000

MAXIMUM DAILY  
AMOUNT

250000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	OXYGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7782-44-5
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 20 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

OXYGEN REFRIGERATED LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

LIQUID OXYGEN

EHS\*

☐ Yes ☒ No

CAS #

7782-44-7

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

11000

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☒ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Healt

AVERAGE DAILY  
AMOUNT

17000

MAXIMUM DAILY  
AMOUNT

17000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☒ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	OXYGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7782-44-7
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0 1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

ADDITIONAL LOCALLY COLLECTED INFORMATION:

If EPCRA, Please Sign Here

DICE 01031

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 21 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

B3 (#36), D5

## II. CHEMICAL INFORMATION

CHEMICAL NAME

PETORLEUM BASED MOTOR OIL

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

MOTOR OIL

EHS\*

☐ Yes ☒ No

CAS #

8002-05-9

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

CL-IIIB

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

55

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

110

MAXIMUM DAILY  
AMOUNT

110

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	OIL	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01032

# HAZARDOUS MATERIALS INVENTORY

(one page per material per building or area)

Page 22 of 46

I: FACILITY INFORMATION			
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC			
CHEMICAL LOCATION		CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA	
FACILITY ID#	1 9 0 4 9 6 0 0 0 9 4	MAP# (optional)	GRID# (optional) E7 (#17)

II: CHEMICAL INFORMATION	
CHEMICAL NAME PROPANE	TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions
COMMON NAME PROPANE	EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
CAS # 74-98-6	*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA) FG			
HAZARDOUS MATERIAL TYPE (Check one item only)	<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE	RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CURIES
PHYSICAL STATE (Check one item only)	<input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS	LARGEST CONTAINER 4200	
FED HAZARD CATEGORIES (Check all that apply)	<input checked="" type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Healt		
AVERAGE DAILY AMOUNT 5000	MAXIMUM DAILY AMOUNT 5000	ANNUAL WASTE AMOUNT 0	STATE WASTE CODE
UNITS* (Check one item only)	<input type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input checked="" type="checkbox"/> POUNDS <input type="checkbox"/> TONS	DAYS ON SITE 365	
Storage Container (Check all that apply)	<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon		

STORAGE PRESSURE	<input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT
STORAGE TEMPERATURE	<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	PROPANE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	74-98-6
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01033

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 23 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D6 (#19)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

CALCIUM CHLORIDE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

CALCIUM CHLORIDE

EHS\*

☐ Yes ☒ No

CAS #

10043-52-4

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☒ SOLID

☐ LIQUID

☐ GAS

LARGEST CONTAINER

400

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Healt

AVERAGE DAILY  
AMOUNT

8000

MAXIMUM DAILY  
AMOUNT

8000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	CALCIUM CHLORIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10043-52-4
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

ADDITIONAL LOCALLY COLLECTED INFORMATION:

If EPCRA, Please Sign Here

DICE 01034

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 24 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) 124-38-9

## II. CHEMICAL INFORMATION

CHEMICAL NAME

CARBON DIOXIDE REFRIGERATED LIQUID

TRADE SECRET ☐ Yes ☒ No

If Subject to EPCRA, refer to instructions

COMMON NAME

CARBON DIOXIDE LIQUID

EHS\* ☐ Yes ☒ No

CAS #

124-38-9

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE ☐ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID ☒ LIQUID ☐ GAS

LARGEST CONTAINER  
13000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire ☐ Reactive ☒ Pressure Release ☒ Acute Health ☐ Chronic Health

AVERAGE DAILY AMOUNT

13000

MAXIMUM DAILY AMOUNT

13000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☒ GALLONS ☐ CUBIC FEET ☐ POUNDS ☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tan ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Buildin ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☐ Cylinder ☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	CO2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION.

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 25 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) E7, (#5)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

PROPYLENE

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

PROPYLENE

EHS\* ☒ Yes ☐ No

CAS #

115-07-1

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE ☐ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID ☒ LIQUID ☐ GAS

LARGEST CONTAINER  
8700

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire ☐ Reactive ☐ Pressure Release ☐ Acute Health ☐ Chronic Healt

AVERAGE DAILY  
AMOUNT

8700

MAXIMUM DAILY  
AMOUNT

9000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS ☐ CUBIC FEET ☒ POUNDS ☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tan ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Buildin ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☒ Cylinder ☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT ☒ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT ☐ b ABOVE AMBIENT ☒ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	PROPYLENE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	115-07-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION.

If EPCRA, Please Sign Here



# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 26 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D1, D2

## II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROUS OXIDE GAS

TRADE SECRET ☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NITROUS OXIDE GAS

EHS\*

☐ Yes ☒ No

CAS #

10024-97-2

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

365

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Healt

AVERAGE DAILY  
AMOUNT

65000

MAXIMUM DAILY  
AMOUNT

65000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b. ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	NITROUS OXIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01037

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 27 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) E3 (#60)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ETHYLENE

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

ETHYLENE

EHS\* ☐ Yes ☒ No

CAS #

74-85-1

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE ☐ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID ☐ LIQUID ☒ GAS

LARGEST CONTAINER  
414

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire ☐ Reactive ☐ Pressure Release ☐ Acute Health ☒ Chronic Healt

AVERAGE DAILY  
AMOUNT

3000

MAXIMUM DAILY  
AMOUNT

3000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*  
(Check one item only)

☐ GALLONS ☐ CUBIC FEET ☒ POUNDS ☐ TONS

DAYS ON  
SITE 0

Storage Container  
(Check all that apply)

☐ Aboveground Tank ☐ Plastic/Nonmetallic Dr ☐ Fiber Drum ☐ Glass Bottle ☐ Rail Car  
☐ Underground Tan ☐ Can ☐ Bag ☐ Plastic Bottle ☐ Other  
☐ Tank Inside Buildin ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☒ Cylinder ☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT ☒ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT ☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	ETHYLENE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	74-85-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0 1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

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**HAZARDOUS MATERIALS**

**HAZARDOUS MATERIALS INVENTORY**

**CHEMICAL DESCRIPTION**

(one page per material per building or area)

Page 28 of 46

I: FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		19049600094		MAP# (optional)		1		GRID# (optional) C2	
II: CHEMICAL INFORMATION									
CHEMICAL NAME NEON						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME NEON						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS # 7440-01-9						*If EHS is "Yes" all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only) <input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS				LARGEST CONTAINER 261					
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Healt									
AVERAGE DAILY AMOUNT 5200		MAXIMUM DAILY AMOUNT 5200		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE 0			
UNITS* (Check one item only) <input type="checkbox"/> GALLONS <input checked="" type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS		DAYS ON SITE 0							
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d. CRYOGENIC									
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1	NEON				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
2					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
4					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
5					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01039

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 29 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D2 (#33)

## II. CHEMICAL INFORMATION

CHEMICAL NAME

TRIFLUOROMETHANE

TRADE SECRET ☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

HALOCARBON 23

EHS\*

☐ Yes ☒ No

CAS #

75-46-7

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

385

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Healt

AVERAGE DAILY  
AMOUNT

7700

MAXIMUM DAILY  
AMOUNT

10000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	FLUOROFORM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	75-46-7
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 30 of 46

I. FACILITY INFORMATION										
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC										
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA				
FACILITY ID#		1 9		0 4 9		6 0 0 0 9 4		MAP# (optional)		GRID# (optional) D2 (#33)
II. CHEMICAL INFORMATION										
CHEMICAL NAME HEXAFLUOROETHANE						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions				
COMMON NAME HALOCARBON 116						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
CAS # 76-16-4						*If EHS is "Yes", all amounts below must be in lbs.				
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)										
HAZARDOUS MATERIAL TYPE (Check one item only)		<input checked="" type="checkbox"/> PURE		<input type="checkbox"/> MIXTURE		<input type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES
PHYSICAL STATE (Check one item only)		<input type="checkbox"/> SOLID		<input type="checkbox"/> LIQUID		<input checked="" type="checkbox"/> GAS		LARGEST CONTAINER 266		
FED HAZARD CATEGORIES (Check all that apply)		<input type="checkbox"/> Fire		<input type="checkbox"/> Reactive		<input checked="" type="checkbox"/> Pressure Release		<input type="checkbox"/> Acute Health		<input checked="" type="checkbox"/> Chronic Healt
AVERAGE DAILY AMOUNT 1200		MAXIMUM DAILY AMOUNT 1200		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE 0				
UNITS* (Check one item only)		<input type="checkbox"/> GALLONS		<input checked="" type="checkbox"/> CUBIC FEET		<input type="checkbox"/> POUNDS		<input type="checkbox"/> TONS		DAYS ON SITE 365
Storage Container (Check all that apply)		<input type="checkbox"/> Aboveground Tank		<input type="checkbox"/> Plastic/Nonmetallic Dr		<input type="checkbox"/> Fiber Drum		<input type="checkbox"/> Glass Bottle		<input type="checkbox"/> Rail Car
		<input type="checkbox"/> Underground Tan		<input type="checkbox"/> Can		<input type="checkbox"/> Bag		<input type="checkbox"/> Plastic Bottle		<input type="checkbox"/> Other.
		<input type="checkbox"/> Tank Inside Buildin		<input type="checkbox"/> Carboy		<input type="checkbox"/> Box		<input type="checkbox"/> Tote Bin		
		<input type="checkbox"/> Steel Drum		<input type="checkbox"/> Silo		<input checked="" type="checkbox"/> Cylinder		<input type="checkbox"/> Tank Wagon		
STORAGE PRESSURE		<input type="checkbox"/> a AMBIENT		<input checked="" type="checkbox"/> b ABOVE AMBIENT		<input type="checkbox"/> c BELOW AMBIENT				
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT		<input type="checkbox"/> b ABOVE AMBIENT		<input type="checkbox"/> c BELOW AMBIENT		<input type="checkbox"/> d CRYOGENIC		
% WT	HAZARDOUS COMPONENT (For mixture or waste only)					EHS		CAS#		
1	99 90%	HEXAFLUOROETHANE					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		76-16-4	
2							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.										
ADDITIONAL LOCALLY COLLECTED INFORMATION:										
If EPCRA, Please Sign Here										

DICE 01041

# HAZARDOUS MATERIALS INVENTORY

## CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 31 of 46

I. FACILITY INFORMATION										
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC										
CHEMICAL LOCATION							CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)			GRID# (optional)			
II. CHEMICAL INFORMATION										
CHEMICAL NAME TETRAFLUOROMETHANE							TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME HALOCARBON 14							EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS # 75-73-0							If EHS is "Yes", all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)										
HAZARDOUS MATERIAL TYPE (Check one item only)				<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE			RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES	
PHYSICAL STATE (Check one item only)				<input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS			LARGEST CONTAINER 530			
FED HAZARD CATEGORIES (Check all that apply)				<input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Healt						
AVERAGE DAILY AMOUNT 15800		MAXIMUM DAILY AMOUNT 15800		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE 0				
UNITS* (Check one item only)		<input type="checkbox"/> GALLONS <input checked="" type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS				DAYS ON SITE 365				
Storage Container (Check all that apply)										
<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon										
STORAGE PRESSURE <input checked="" type="checkbox"/> a. AMBIENT <input type="checkbox"/> b. ABOVE AMBIENT <input type="checkbox"/> c. BELOW AMBIENT										
STORAGE TEMPERATURE <input type="checkbox"/> a. AMBIENT <input checked="" type="checkbox"/> b. ABOVE AMBIENT <input type="checkbox"/> c. BELOW AMBIENT <input type="checkbox"/> d. CRYOGENIC										
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1	99.90%	TETRAFLUOROMETHANE				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		75-73-0		
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.										
ADDITIONAL LOCALLY COLLECTED INFORMATION										
If EPCRA, Please Sign Here										

DICE 01042

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 32 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERIC									
CHEMICAL LOCATION							CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA		
FACILITY ID#		1 9 0 4 9		6 0 0 0 9 4		MAP# (optional)		GRID# (optional) E3 (#60)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME ETHANE							TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions		
COMMON NAME ETHANE							EHS* <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
CAS # 74-84-0							*If EHS is "Yes", all amounts below must be in lbs.		
FIRE CODE HAZARD CLASSES (Complete if required by CUPA) FG									
HAZARDOUS MATERIAL TYPE (Check one item only) <input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			CURIES		
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS				LARGEST CONTAINER 435					
FED HAZARD CATEGORIES (Check all that apply) <input checked="" type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Health									
AVERAGE DAILY AMOUNT 850		MAXIMUM DAILY AMOUNT 850		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE			
UNITS* (Check one item only) <input type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input checked="" type="checkbox"/> POUNDS <input type="checkbox"/> TONS						DAYS ON SITE 365			
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other. <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC									
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#	
1	99 90%	ETHANE				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		74-84-0	
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01043

United Program Consolidated For  
**HAZARDOUS MATERIALS INVENTORY**  
CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 33 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) D2 (#33)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME BROMOTRIFLUOROMETHANE						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME R13B1						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS # 75-63-8						If EHS is "Yes", all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only) <input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS				LARGEST CONTAINER 390					
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input checked="" type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Health									
AVERAGE DAILY AMOUNT 780		MAXIMUM DAILY AMOUNT 1560		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE			
UNITS* (Check one item only) <input type="checkbox"/> GALLONS <input checked="" type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS						DAYS ON SITE 365			
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other. <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b. ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC									
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1	99 90%	BROMOTRIFLUORMETHANE				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		75-63-8	
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01044



## HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 34 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9		0 4 9		6 0 0 0 9 4		MAP# (optional) 1 GRID# (optional) E3	
II. CHEMICAL INFORMATION									
CHEMICAL NAME ISOBUTYLENE						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject to EPCRA, refer to instructions			
COMMON NAME ISOBUTYLENE						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS # 115-11-7						*If EHS is Yes, all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA) FG									
HAZARDOUS MATERIAL TYPE (Check one item only)		<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only)		<input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS		LARGEST CONTAINER 50					
FED HAZARD CATEGORIES (Check all that apply)		<input checked="" type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Health							
AVERAGE DAILY AMOUNT 200		MAXIMUM DAILY AMOUNT 200		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE			
UNITS* (Check one item only)		<input type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input checked="" type="checkbox"/> POUNDS <input type="checkbox"/> TONS		DAYS ON SITE 365					
Storage Container (Check all that apply)		<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon							
STORAGE PRESSURE		<input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT							
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d. CRYOGENIC							
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1	99.90%	ISOBUTYLENE				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		115-11-7	
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01045

# HAZARDOUS MATERIALS INVENTORY

(one page per material per building or area)

Page 35 of 46

## I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL - EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

E3

## II. CHEMICAL INFORMATION

CHEMICAL NAME

ISOBUTANE

TRADE SECRET

☐ Yes ☒ No

If Subject of EPCRA, refer to instructions

COMMON NAME

ISOBUTANE

EHS\*

☒ Yes ☐ No

CAS #

75-28-5

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

70

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

210

MAXIMUM DAILY AMOUNT

210

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other.

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	ISOBUTANE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	75-28-5
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01046

### CHEMICAL DESCRIPTION

(one page per material per building or area)

**DICE 01047**

# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 37 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) D3	
II. CHEMICAL INFORMATION									
CHEMICAL NAME XENON						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If Subject to EPCRA, refer to instructions</i>			
COMMON NAME XENON						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS # 7440-63-3						*If EHS is "Yes", all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only)			<input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE			RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES	
PHYSICAL STATE (Check one item only)			<input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> GAS			LARGEST CONTAINER 230			
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input checked="" type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Health									
AVERAGE DAILY AMOUNT 3000		MAXIMUM DAILY AMOUNT 3000		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE			
UNITS* (Check one item only)		<input type="checkbox"/> GALLONS <input checked="" type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS				DAYS ON SITE 365			
Storage Container (Check all that apply)									
<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other: <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input checked="" type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input type="checkbox"/> a AMBIENT <input checked="" type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC									
% WT	HAZARDOUS COMPONENT (For mixture or waste only)					EHS		CAS#	
1						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01048

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 38 of 46

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D3

II. CHEMICAL INFORMATION

CHEMICAL NAME

KRYPTON

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

KRYPTON

EHS\*

☐ Yes ☒ No

CAS #

7439-90-9

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

230

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

4000

MAXIMUM DAILY  
AMOUNT

4000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c. BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01049

## HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 39 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION							CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA		
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) E7 (#15)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME CALCIUM HYDROXIDE							TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions		
COMMON NAME CARBIDE LIME							EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
CAS # 1305-62-0							*If EHS is "Yes", all amounts below must be in lbs		
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only) <input checked="" type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			CURIES		
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS				LARGEST CONTAINER 9000					
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Health									
AVERAGE DAILY AMOUNT 60000		MAXIMUM DAILY AMOUNT 60000		ANNUAL WASTE AMOUNT 0		STATE WASTE CODE			
UNITS* (Check one item only) <input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS		DAYS ON SITE 365							
Storage Container (Check all that apply) <input checked="" type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC									
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1	99 90%	CALCIUM HYDROXIDE				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		1305--62-0	
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01050

Unified Program Consolidated For  
**HAZARDOUS MATERIALS INVENTORY**  
CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 40 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		19049600094		MAP# (optional)		GRID# (optional)		F3 (#44)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME OILY WATER (WASTE)						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME OILY WATER (WASTE)						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS #						*If EHS is "Yes", all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only) <input type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input checked="" type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS				LARGEST CONTAINER 55					
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Healt									
AVERAGE DAILY AMOUNT		MAXIMUM DAILY AMOUNT		ANNUAL WASTE AMOUNT 700		STATE WASTE CODE 221			
UNITS* (Check one item only) <input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS						DAYS ON SITE 365			
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input checked="" type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d. CRYOGENIC									
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
2					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
4					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
5					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01051

Unified Program Consolidated For  
**HAZARDOUS MATERIALS INVENTORY**  
CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 41 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) F3 (#44)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME NEUTRALIZED CAUSTIC SOLUTION (WASTE)						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME NEUTRALIZED CAUSTIC SOLUTION (WASTE)						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS #						*If EHS is "Yes", all amounts below must be in lbs.			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only)				<input type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input checked="" type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES	
PHYSICAL STATE (Check one item only)				<input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS		LARGEST CONTAINER 55			
FED HAZARD CATEGORIES (Check all that apply)				<input type="checkbox"/> Fire <input checked="" type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input checked="" type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Healt					
AVERAGE DAILY AMOUNT		MAXIMUM DAILY AMOUNT		ANNUAL WASTE AMOUNT		200		STATE WASTE CODE 122	
UNITS* (Check one item only)		<input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS		DAYS ON SITE		365			
Storage Container (Check all that apply)		<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input checked="" type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon							
STORAGE PRESSURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT							
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC							
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#	
1						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01052



# HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 42 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION							CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA		
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) F3 (#44)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME WATER BASED PAINT (WASTE)							TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions		
COMMON NAME WATER BASED PAINT (WASTE)							EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
CAS #							*If EHS is "Yes", all amounts below must be in lbs		
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only)				<input type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input checked="" type="checkbox"/> WASTE		RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES	
PHYSICAL STATE (Check one item only)				<input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS		LARGEST CONTAINER 55			
FED HAZARD CATEGORIES (Check all that apply)				<input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Healt					
AVERAGE DAILY AMOUNT			MAXIMUM DAILY AMOUNT			ANNUAL WASTE AMOUNT 600		STATE WASTE CODE 135	
UNITS* (Check one item only)			<input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS			DAYS ON SITE 365			
Storage Container (Check all that apply)									
<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input checked="" type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE				<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT					
STORAGE TEMPERATURE				<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c. BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC					
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#	
1						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01053

United Program Consolidated For

HAZARDOUS MATERIALS

**HAZARDOUS MATERIALS INVENTORY**

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 43 of 46

I. FACILITY INFORMATION											
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA											
CHEMICAL LOCATION							CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA				
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) F3 (#44)			
II. CHEMICAL INFORMATION											
CHEMICAL NAME NEUTRALIZED CAUSTIC SOLUTION (WASTE)							TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions				
COMMON NAME WASTE CAUSTIC SOLUTION							EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
CAS #							*If EHS is "Yes", all amounts below must be in lbs.				
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)											
HAZARDOUS MATERIAL TYPE (Check one item only) <input type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input checked="" type="checkbox"/> WASTE					RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES				
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS					LARGEST CONTAINER						
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input checked="" type="checkbox"/> Acute Health <input type="checkbox"/> Chronic Healt											
AVERAGE DAILY AMOUNT		55		MAXIMUM DAILY AMOUNT		55		ANNUAL WASTE AMOUNT 200		STATE WASTE CODE 122	
UNITS* (Check one item only)		<input checked="" type="checkbox"/> GALLONS		<input type="checkbox"/> CUBIC FEET		<input type="checkbox"/> POUNDS		<input type="checkbox"/> TONS		DAYS ON SITE 365	
Storage Container (Check all that apply)		<input type="checkbox"/> Aboveground Tank		<input type="checkbox"/> Plastic/Nonmetallic Dr		<input type="checkbox"/> Fiber Drum		<input type="checkbox"/> Glass Bottle		<input type="checkbox"/> Rail Car	
		<input type="checkbox"/> Underground Tan		<input type="checkbox"/> Can		<input type="checkbox"/> Bag		<input type="checkbox"/> Plastic Bottle		<input type="checkbox"/> Other	
		<input type="checkbox"/> Tank Inside Buildin		<input type="checkbox"/> Carboy		<input type="checkbox"/> Box		<input type="checkbox"/> Tote Bin			
		<input checked="" type="checkbox"/> Steel Drum		<input type="checkbox"/> Silo		<input type="checkbox"/> Cylinder		<input type="checkbox"/> Tank Wagon			
STORAGE PRESSURE		<input checked="" type="checkbox"/> a AMBIENT		<input type="checkbox"/> b ABOVE AMBIENT		<input type="checkbox"/> c BELOW AMBIENT					
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT		<input type="checkbox"/> b ABOVE AMBIENT		<input type="checkbox"/> c BELOW AMBIENT		<input type="checkbox"/> d CRYOGENIC			
% WT		HAZARDOUS COMPONENT (For mixture or waste only)					EHS		CAS#		
1							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
2							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
3							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
4							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
5							<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information											
ADDITIONAL LOCALLY COLLECTED INFORMATION:											
If EPCRA, Please Sign Here											

DICE 01054

## HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 44 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		1 9 0 4 9 6 0 0 0 9 4		MAP# (optional)		1		GRID# (optional) F3 (#44)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME OILY WATER (WASTE)						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME WASTE OILY WATER						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS #						*If EHS is "Yes", all amounts below must be in lbs			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only) <input type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input checked="" type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS				LARGEST CONTAINER					
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Healt									
AVERAGE DAILY AMOUNT 55		MAXIMUM DAILY AMOUNT 55		ANNUAL WASTE AMOUNT 700		STATE WASTE CODE 221			
UNITS* (Check one item only) <input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS						DAYS ON SITE 365			
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input checked="" type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT									
STORAGE TEMPERATURE <input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d CRYOGENIC									
% WT	HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#		
1					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
2					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
4					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
5					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01055

HAZARDOUS MATERIALS

HAZARDOUS MATERIALS INVENTORY

CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 45 of 46

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

F3 (#44)

II. CHEMICAL INFORMATION

CHEMICAL NAME

SPENT "MONKEY" DUST (WASTE)

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

WASTE SPENT "MONKEY" DUST

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☒ SOLID

☐ LIQUID

☐ GAS

LARGEST CONTAINER

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☒ Acute Health

☐ Chronic Healt

AVERAGE DAILY  
AMOUNT

550

MAXIMUM DAILY  
AMOUNT

550

ANNUAL WASTE  
AMOUNT

1500

STATE WASTE  
CODE

181

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dr

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tan

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01056

**HAZARDOUS MATERIALS INVENTORY** CHEMICAL DESCRIPTION  
(one page per material per building or area)

Page 46 of 46

I. FACILITY INFORMATION									
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) AIR LIQUIDE CORPORATION AMERICA									
CHEMICAL LOCATION						CHEMICAL LOCATION CONFIDENTIAL - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No EPCRA			
FACILITY ID#		19049600094		MAP# (optional)		1		GRID# (optional) F3 (#44)	
II. CHEMICAL INFORMATION									
CHEMICAL NAME WATER BASED PAINT (WASTE)						TRADE SECRET <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Subject o EPCRA, refer to instructions			
COMMON NAME WASTE WATER BASED PAINT						EHS* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CAS #						*If EHS is "Yes", all amounts below must be in lbs			
FIRE CODE HAZARD CLASSES (Complete if required by CUPA)									
HAZARDOUS MATERIAL TYPE (Check one item only) <input type="checkbox"/> PURE <input type="checkbox"/> MIXTURE <input checked="" type="checkbox"/> WASTE				RADIOACTIVE <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CURIES			
PHYSICAL STATE (Check one item only) <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> GAS				LARGEST CONTAINER 55					
FED HAZARD CATEGORIES (Check all that apply) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Release <input type="checkbox"/> Acute Health <input checked="" type="checkbox"/> Chronic Health									
AVERAGE DAILY AMOUNT 55		MAXIMUM DAILY AMOUNT 55		ANNUAL WASTE AMOUNT 600		STATE WASTE CODE 135			
UNITS* (Check one item only) <input checked="" type="checkbox"/> GALLONS <input type="checkbox"/> CUBIC FEET <input type="checkbox"/> POUNDS <input type="checkbox"/> TONS						DAYS ON SITE 365			
Storage Container (Check all that apply) <input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Plastic/Nonmetallic Dr <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Rail Car <input type="checkbox"/> Underground Tan <input type="checkbox"/> Can <input type="checkbox"/> Bag <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Other. <input type="checkbox"/> Tank Inside Buildin <input type="checkbox"/> Carboy <input type="checkbox"/> Box <input type="checkbox"/> Tote Bin <input checked="" type="checkbox"/> Steel Drum <input type="checkbox"/> Silo <input type="checkbox"/> Cylinder <input type="checkbox"/> Tank Wagon									
STORAGE PRESSURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT							
STORAGE TEMPERATURE		<input checked="" type="checkbox"/> a AMBIENT <input type="checkbox"/> b ABOVE AMBIENT <input type="checkbox"/> c BELOW AMBIENT <input type="checkbox"/> d. CRYOGENIC							
% WT		HAZARDOUS COMPONENT (For mixture or waste only)				EHS		CAS#	
1						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
2						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
4						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information									
ADDITIONAL LOCALLY COLLECTED INFORMATION									
If EPCRA, Please Sign Here									

DICE 01057

IFS

Environmental Assessment Items:	Y/N	N/A	Complies	Does not comply	Not reviewed
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**Air**

Is there an air permit or exemption for the following sources:					
a. Paint booth or paint operations? <i>Spray booth Paint + SNAI</i>					
b. Shot Blast? <i>NO - offsite</i>					
c. Flare?					
d. Scrubber?					
e. CO2 emissions?					
f. Fuel fired equipment?					
g. Other					
Following all requirements for air permit or exemption including documentation?					
Is the VOC content in the paint equal to or below the state required limits?					
Air permit expiration date? <i>Annual Renewal 7/31/04</i>					
Has the facility been inspected by a regulatory agency?					

**Comments:**

City of SF S - annual fee due December  
 Waste Generator fee, SW fee, H/N fee, IR  
 Stat SW Annual

Daily Paint use  
~~4/8/04-3/9/04~~ 1/8/04-3/9/04  
~~Annual~~ New report  
 dual map calculated  
 2002-2003 - same  
 Western County: exclude water, highest  
 2.71 #/gal  
 water 1.12 #/gal

Biennial: maintain on 10 years documentation Air permit  
 Annual  
 WATER - NPDES - 40 CFR Parts 122 N/A - SW only - Renewal fee \$50 May

	Y/N	N/A	Complies	Does not comply	Not reviewed
Does the facility generate wastewater?					
a. Oil/ Water Separator?					
b. Cooling water?					
c. Vehicle washing?					
c 1 Permit to discharge to POTW or Onsite wash vendor collecting wastewater or wash offsite?					
d. Floor drains?					
e. Other process wastewater?					
Discharge points known for each water source?					
Does the location have a wastewater permit with state, or permit/agreement with POTW?					
Permit conditions met?					
Permit expiration?					
Are monitoring requirements followed as permitted?					
Required reports submitted to permitting authority?					
Exceedances reported to permitting authority?					
Are the limits set by the POTW or state verified annual if monitoring not required?					
Are monitoring records kept for 5 years?					
Are there any obvious residual spills or residues outside of spill control areas?					
Are drainage areas clean & free of debris?					
Do all sinks or drains flow to the industrial wastewater system?					

Has the facility been inspected by a regulatory agency?					
Misc					
UIC permit to operate?					
Permit conditions met?					

**Comments:**

Recommended: Only retain lab reports annual reports x 5 years  
NEED COPY of current General Permit SW if not CAS000001

**Stormwater 40 CFR Part 122**

LA State SW Permit

	Y/N	N/A	Complies	Does not comply	Not reviewed
Does the location have an SIC code of 2819 Manufacturing? 5169-	N				
If yes, does the location have an industrial stormwater permit or exemption from the state?	N		X		
Does the location have a SWPPP?	Y				
Has the plan been reviewed/revised in the past 12 months?	N				
Have all the employees had SW training in the past 12 months?					
Does the location have documentation for visual & analytical monitoring required by permit?			X		
Are monitoring records kept for 5 years?					
Are there any areas where poor housekeeping practices could contaminate stormwater?					
Has the facility been inspected by a regulatory agency?					

**Comments:**

Annual SW report required  
2003 2/11/03 SC O+G, pH TSS+TOC  
11/3/03 pH TSS SC O+G TOC document 1st statement  
OLD NOV2001 - no report filed  
Quarantine completed 9/24/03  
2/13/04

months completed Linda Clemente  
Oct 03  
Nov 03 LAB: WICK Laboratories Inc  
Dec 03  
Jan 04  
Feb 04  
Mar 04

**SARA Title 3 EPCRA 40 CFR Part 370 Tier II**

CURA permit expired 3/1/04

	Y/N	N/A	Complies	Does not comply	Not reviewed
Does facility submit annual report to State, LEPC & Fire department? (Generally thresholds are 10,000lbs hazardous chemical or 500lbs of EHS)					
(Most states due date March 1st, Oregon September, California HMBP replaces Tier II, due misc times)					
Reports sent to SERC, LEPC & Fire department?					
Are reports maintained on site for 3 years?					

**Comments:**

max 10000 lbs Propylene HMBP -

**SARA Title 3 EPCRA 40 CFR Part 355**

Y/N	N/A	Complies	Does not comply	Not reviewed

Does the facility know to immediately report releases of any hazardous substance or oil above reportable quantities to National Response Center, State Emergency Response Commission and LEPC?

Immediately report ammonia releases above 100lbs/day to NRC, SERC & LEPC?

Comments:

**SARA Title 3 EPCRA 40 CFR Part 372 TRI**

Y/N	N/A	Complies	Does not comply	Not reviewed

Does facility complete Form R or Form A before July 1 annually for chemicals on Toxic list - manufacture/process over 25,000lbs?

Report ODS refrigerant losses over 10,000/year?

Propylene/Ethylene/Ethylene Oxide process over 25,000lbs?

Report ammonia losses exceed 10,000lbs/year?

Comments:

**Used Oil Regulations 40 CFR part 279**

Y/N	N/A	Complies	Does not comply	Not reviewed

Is all used oil recycled?

Are oily rags & absorbents collected & sent for recycling where possible?

DICE 01060

51

X



Is oil recycler EPA approved?	Demenno Gordon	ERADP					
Are there any obvious residual spills or residues outside of spill control areas?							

**Comments:**

ASK SK for audit info on recycler  
 Receive cert of recycler each month to D.K

Hazardous Waste Generator or Solid Waste requirements 40 CFR Part 261- 262	Y/N	N/A	Complies	Does not comply	Not reviewed
Does the facility generate hazardous waste?					
a. Shot blast?					
b. Liquid paint?					
c. Aerosol spray paint cans - unpunctured?					
d. Scrubber solution?					
e. Solvents?					
d. Filters?					
f. Other?					
<u>Labeling:</u>					
Is each container of waste labeled with the words "Hazardous Waste" or the contents?					
Are non-hazardous waste labeled with the contents?					
Are labels easily noticed - facing outward and is writing legible?					
Is aerosol spray paint can waste collection container labeled with hazardous waste label?					
<u>Storage:</u>					
Are waste containers in good condition? (no dents, rust, leaks)					
Is waste being place in containers compatible with the waste being stored in containers?					
Are satellite and 90-day storage areas equipped with emergency equipment?					
Is there at least 36" between rows of drums?					
Are waste containers closed except when adding or removing waste?					
Are incompatible chemicals and wastes separated by means of a dike, berm, wall or distance?					
Do chemical and waste containers have spill containment that is 1.5 X the largest container?					
Lime storage in permitted pond or in tanks, preventing release to environment?					
Does the facility use an aerosol spray paint can puncture system?					
Are aerosol spray paint cans collected in reclosable container for hazardous waste disposal by outside vendor?					
Is there adequate hazmat spill control equipment/supplies in the waste/chemical storage area?					
Do all containers in 180-day (SQG's) and 90-day (LQG's) storage areas have dates showing when the container arrived in the area?					
Are weekly inspections of storage areas including secondary containment completed & documented?					
<u>Disposal/Recycle:</u>					

If shot blast classified as non-hazardous waste, does the facility have permission to dispose of in general trash or send to offsite vendor?					
Lime recycle/reuse at approved vendor with formal agreement?					
Scrap acetylene cylinders sent for recycling?					
Scrap high pressure cylinders sent for recycling?					
"Unknowns" on property sent for disposal/recycle with approved vendor?					
Radiator servicing - Used ethylene glycol, propylene glycol or other similar heat exchange fluids, recycled by reputable recycler or disposed of through approved disposal company?					
Are paint filters completely dry before disposal in general trash ?					
Are bulk paint containers with excess liquid paint disposed of as hazardous or (universal wasteTX only)?					
Is the water used to clean brushes or other materials collected and disposed of by hazard category?					
Documentation/training:					
Have all employees who sign manifests attended the following training: annual RCRA awareness & DOT Hazardous Material every 3 years?					
Waste documentation maintained for 3 years & 3 years only?					
Profile or waste determination for each waste every 3 years?					
Is waste management company approved & have contract/hold harmless with Air Liquide?					
Exception reports filed with EPA region if the generator does not receive back signed manifest from the offsite TSD facility within 60 days?					
Is an annual hazardous waste report filed with state agency as applicable?					
BMP:					
Current file of applicable national, state & local regulations?					
Participate in local recycling programs and to reduce the volume of solid waste material when practical?					
Identify & document all their nonhazardous waste streams and repeat process when new streams are introduced?					
Policies and procedures developed for the proper handling of solid non-hazardous waste?					
mixed?					
Personnel periodically informed about materials that are prohibited from disposal in solid waste receptacles?					
Waste Management Plan up to date?					

**Comments:**

Generator status

**SPCC 40 CFR Part 112**

SPCC plan if oil storage capacity is over 1320 gallons total (only containers equal to or greater than 55 gallons)?

Y/N	N/A	Complies	Does not comply	Not reviewed

Is adequate containment provided and containment system in good condition?					
After Feb 2005 - Is there adequate containment for loading/unloading areas?					
SPCC plan maintained & followed?					
Reviews & revised every 5 years?					
Signed by P.E?					
Water accumulated in containment areas managed to prevent discharge of oil into environment?					
Inspection records maintained?					
Spill report for each incident where an oil spill has entered navigable water?					
Annual training documented?					
Integrity testing performed?					

Comments:

Universal Waste 40 CFR Part 273	Y/N	N/A	Complies	Does not comply	Not reviewed
Recycle/dispose of universal waste (fluorescent bulbs & batteries) through reputable company?					
Label universal waste with content & date of generation?					
Universal waste recycled/disposed of within 12 months of generation?					
Annual training documented?					

Comments:

*- only uses green tip bulbs per plat mgr -*

Ozone Depleting Substances 40 CFR Part 82	Y/N	N/A	Complies	Does not comply	Not reviewed
ODS systems serviced, maintained & repaired by EPA certified technician?					
Service records kept for systems over 50lbs? (class I or class II)					
Repair requirements when annual leak rates of the full charge exceed 35%?					
Certified recovery/recycling equipment used to remove refrigerant when necessary? (No venting to atm)					

Comments:

**Risk Management Plans 40 CFR Part 68**

Y/N	N/A	Complies	Does not comply	Not reviewed

Does location have RMP if store over 10,000lbs of listed chemicals (l.e. ammonia acetylene hydrogen)?

Does location follow RMP?

a. Accident Prevention Program?

b. Emergency Response Program?

c. Records maintained x 5 years?

Comments:

**UST**

Y/N	N/A	Complies	Does not comply	Not reviewed

Able to provide, at a minimum, a method or combination of methods of release detection?

Release detection for piping?

Spills and overflows over 25 gallons resulting in release to environment or cause a sheen on surface water reported to state or local UST implement agency within 24 hours?

Current financial responsibility documents available?

Registered with state?

Integrity testing?

**AST**


Registered with state?

Integrity testing?

Comments:

# MISC

Environmental files organized & readily available?

Y/N	N/A	Complies	Does not comply	Not reviewed
		X		

## Quality Top 5

Are they following the document control policy?(Document number, revision number, and effective date must match the latest version of the Pilgrim document)

a) Check fill charts

b) Any procedure they're using

c) Cylinder fill manual

Is the latest version of the Cylinder fill plant manual available? (Do they have one & is it the latest version 09/01?)

Are they maintaining their training record? (Ensure employees have been trained to the cyl fill plant manual vers. 9/01 - pick 2,3 or 4 employees and ask them. Ask to see the training log and validate those employees are listed there)

Do they have an area to

a) segregate any nonconforming product (bad valve, leaking vgl etc.)

b) segregated area for fulls

c) segregated area for empties

Do they know how to retrieve a procedure from Pilgrim? (Ask plant manager to

a) demonstrate how he/she retrieves the doc control procedure in Pilgrim

b) explain how he/she knows they are using the latest doc?

c) explain how he/she updates manual when you receive a new version of a procedure from corporate?

Y/N	N/A	Complies	Does not comply	Not reviewed
Y				

Comments:

## DOT Top 10

Are Driver Qualification Files maintained for each driver?

[These files must be separated from personnel files and a separate file for each driver. If not, call Scott]

Are drivers DOT physicals current and on file?

[DOT physicals are renewed every 2 years. Verify that this is in the qualification file and that it is current]

Are drivers MVR's current and on file?

[These are renewed annually. Verify it's in qualification file and that it's current]

Are CDL's current and copies on file?

Y/N	N/A	Complies	Does not comply	Not reviewed
		X		
		X		
9/6/3		X		
		X		

Y NA Complu

[Verify copy is in qualification file and that it's current]					
Are Drivers Daily Logs reviewed, recapped, and retained for at least 6 months?	4 months		X		
[This is for bulk drivers. Verify that a summary of these logs is maintained and retained for at least 6 months]					
Are random drug and alcohol testing being conducted? Documented?			X		
[Vendor Choice Point conducts these tests. Verify that documentation exists and that it is maintained]					
Are individual maintenance files kept for trucks / trailers?			X		
[There should be a separate maintenance file for each truck and trailer which includes: registration information, technical data, work orders, repair history, preventive maintenance: dates, description of work, signature of who did]					
Are Daily Vehicle Inspection Reports retained for at least 90 days?			X		
[Pre and post trip inspections' forms must be complete (all fields including signature) & must be reviewed and signed by the mechanic]					
Are there fire extinguishers on each truck? Are they inspected?	yearly Jan 04	8 months	X		
[Verify that the label on fire extinguisher is current. Verify that the extinguisher is secured and readily accessible.]					
Is proper documentation maintained in each cab (insurance cards and registration)?	yearly 7/03		X		
[Typically drivers will have a pouch with all this information. Flip through and verify that all docs are current ALSO verify they have a camera in the truck (for accident reporting purposes).]					

Comments:

Safety Top 10	Y/N	N/A	Complies	Does not comply	Not reviewed
Are all visitors/contractors required to sign in and out on the facility logbook?			X		
[Walk in and begin conducting business without signing in (unless asked to of course) to verify that someone does ask you to sign in]					
Does the facility have a safety team in place? Who is the safety champion?			X		
[Safety or driver champion is fine What are they doing to 'push' safety, i.e., meetings, committee, champion, cross functional safety team, etc.]					
Do all employees know the policy for reporting injury accidents/near misses?			X		
[Brief interview with any employee and ask 'If you get hurt today what do you do?']					
Policy is in Pilgrim HSE Accident Injury Reporting & Notification]					
Does the location have an Emergency Evacuation Route Plan posted at all exits with assembly points clearly marked?					
[Look for a map near all entrances and exits with indicator(s) for assembly points]					
How often does the facility conduct safety meetings?			X		
[Ask facility manager Ask to see safety meeting log/minutes to validate they are conducting at least 1/month]					
Do forklift operators have seat belts secured?					

DICE 01066

<i>[Observe forklift operator and verify seatbelt is secured. If not, alert supervisor immediately.]</i>					
Describe housekeeping in plant and office area.	good				
Are cylinders being rolled one at a time for distances greater than 5 feet? Are employees rolling more than one cylinder at a time?					
<i>[Policy = may roll 1 cylinder at a time for no more than 5 feet If infraction to policy, alert facility manager immediately]</i>					
Is there a dedicated HSE training file established for each employee.	yes				
<i>[Ask to see the file]</i>					
Interview employees to find out what they think of the locations safety program. What would they do to improve safety at the location? How much safety training have they received?					
<i>[Save this question for the closing meeting]</i>					

Comments:

23,726 lbs <sup>Impound</sup> no form R required this year

- Label bucket

- Remove ph strips release rainwater  
from secondary containment - Corrosion Scabbler

- Remove empty container rules for  
paint containers E

- empty spray cans go in trash -  
- Setup drum -

- 2nd ° Containment - remove oil/water  
Oil storage area

- filters Dd monthly - Add check mark on  
filter -

- put aerosol spray cans in flammable  
cabinet when not in use

- Relabel Old Lime tanks & empty labels

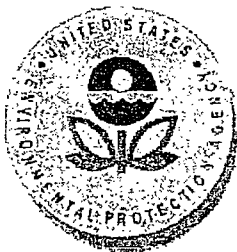
- 40,000 lbs Argon

(Kell) ✓ Storage limits  
Hexafluoroethane, Sulfur Hexafluoride  
Tetra Fluoromethane,



90670LQDRC8832D  
KARL BRUSKOTTER  
OR CURRENT ENVIRONMENTAL MANAGER  
AIR LIQUIDE AMERICA CORP.  
8832 DICE RD  
SANTA FE SPRINGS, CA 90670

DICE 01069



U.S. ENVIRONMENTAL PROTECTION AGENCY  
TRI PROGRAM DIVISION  
WASHINGTON, D C 20460

COPY

90670LQDRC8832D  
KARL BRUSKOTTER OR CURRENT ENVIRONMENTAL MANAGER  
AIR LIQUIDE AMERICA CORP  
8832 DICE RD.  
SANTA FE SPRINGS CA 90670

**TOXIC RELEASE INVENTORY  
FACILITY DATA PROFILE**

This notice provides information recently submitted by you in your Form R or Form A reports, or corrections included in a response to a previous Facility Data Profile, that we have entered into the Toxic Release Inventory database.

The EPA wishes to accurately represent the data reported by your facility. We believe our data capture process is of high quality. However, as a final quality measure, please verify the data presented in the enclosed Facility Data Profile. This Facility Data Profile serves two primary purposes. First, we want to give you the opportunity to confirm that we have entered your data correctly into our national computer system. If we have not, advise us so we can make corrections. Second, if we identify potential errors in the forms you have submitted, we indicate what these errors are and request that you provide us with corrections.

If the data presented in the enclosed Facility Data Profile do not match those on the form(s) you submitted, or if we have identified errors in your forms, or if you have discovered an error in your submitted data, **please respond within 21 days of receipt of this notice.** If we have identified errors in your submitted data, you must respond with corrections to these errors. **Depending on the severity of the error we have identified, failure to correct errors could result in the issuance of a notice of noncompliance.**

The enclosed Facility Data Profile is comprised of the following sections:

**Instruction and Signature page** – This first page provides instructions for how to review and respond to this Facility Data Profile.

**Facility Information (Primary Facility)** - This section displays all facility specific data that you provided, inclusive of TRI Facility Identification, facility name, facility address, facility mailing address, relevant permits (e.g., RCRA, NPDES, and UIC), Standard Industrial Classification code (SIC), and other facility data.

**Facility Information (Establishment)** - If you have reported as a multi-establishment facility, we are providing these subordinate facility data.

**Chemical Summary** - This section lists all chemicals reported by your facility for each reporting year affected by this Facility Data Profile. For example, if this Facility Data Profile is responding to five original chemical submissions for reporting year 1999 and revisions to one chemical for reporting year 1998, a list of all chemicals for both years will appear.

**Chemical Reports for this Facility or Establishment** - All recently processed Form R or Form A submission data (i.e., chemical specific data) are displayed here under the appropriate facility or subordinate facility names. This Facility Data Profile prints chemical reports for recent submissions, revisions or responses to Facility Data Profile only. Hence there may be fewer chemical reports than chemicals listed in the Chemical Summary section. If only facility level changes have occurred (i.e., Part I of the Form R or A), this section is not provided.

The enclosed Facility Data Profile only covers those Form R or Form A reports which have completed our internal data quality checks. If any new Form R or A reports or revisions submitted by your facility are not covered by the enclosed Facility Data Profile, you will be receiving additional correspondence from us.

Please read and follow the instructions on the first page of the enclosed Facility Data Profile. If you need to respond to the Facility Data Profile, **please respond within 21 days of receipt.**

If you have any questions concerning this notice, please contact the EPCRA Reporting Center at: 703-816-4434 (EPCRA Reporting Center User Support, ask for TRI Mailouts) or e-mail at [tri\\_mailouts@epcra.org](mailto:tri_mailouts@epcra.org). You may also wish to check EPA's TRI website for TRI information and updates at <http://www.epa.gov/tri/>.

Thank you for your cooperation in this matter.

Sincerely,

/s/ *Bruce Schillo*, Chief

TRI Information and Outreach Branch (MS-2844)

DICE 01071

TRI Facility Identification No. 90670LQDRC8832D

**INSTRUCTIONS FOR RESPONDING TO TRI FACILITY DATA PROFILE**

1. This Facility Data Profile presents the information you have submitted on the Form R and A reports and that EPA has fully processed. The specific chemicals covered by this Facility Data Profile are shown in the Chemical Summary section.
2. Please review this Facility Data Profile to make sure that EPA has accurately entered your submitted information. If any of the data are incorrect, or you have discovered an error in your submitted data, please circle the incorrect information and indicate the correct information next to it. Please print clearly and use a dark black or blue ink pen. Do not use this response to withdraw a particular Form R or A.
3. If we have identified any potential errors in your submitted data (there will be one or more sections titled Errors Identified), please correct the error by circling the incorrect value and indicate the correct value next to it. Please print clearly and use a dark black or blue pen. If you believe that an error we have identified is really not an error, please provide a brief explanation in the space provided.
4. If you are making any corrections pursuant to the instruction in steps 2 and 3 above, you must sign the certification statement below. Then mail this signed page plus all pages on which you have marked corrections. Do not return pages on which you have neither marked changes nor provided explanations. **Please mail your response within 21 days of receipt of this Facility Data Profile to the address indicated at the bottom of this page and also send a duplicate copy to the same State organization to which you sent a copy of your original submission.** EPA recommends that Government-Owned-Contractor-Operated (GOCO) facilities send copies of their responses to their associated Federal facilities.
5. If you identify no errors in the data presented here and we have identified no errors, no response is necessary.

**CERTIFICATION STATEMENT**

I certify that I have reviewed the attached pages from the Facility Data Profile, and to the best of my knowledge and belief, the information and any corrections I have made to it are true and complete and that the amounts and values presented are accurate based on reasonable estimates using data available to the preparers of this response.

AARON L. TESCH PLANT MANAGER  
Name and official Title of Owner/Operator or Senior Management Official (Print)

Aaron L. Tesch  
Signature

2/8/02  
Date

**RESPONSE ADDRESSES****Regular Mail:**

The EPCRA Reporting Center  
Attn: Facility Data Profile Response  
P.O. Box 3348  
Merrifield, VA 22116-3348

**Certified Mail, Overnight Delivery, Hand Delivery:**

EPCRA Reporting Center (Tel: 703-816-4445)  
Attn: Facility Data Profile Response  
C/O Computer Based Systems Inc.  
4600 North Fairfax Drive Suite 300  
Arlington, VA 22203

And send copy to your state.

**FACILITY INFORMATION:**TRI Facility Identification No: 90670LQDRC8832D

Internal Use - Facility ID: 14060

Primary Facility Name and Address:

AIR LIQUIDE AMERICA CORP8832 DICE RD.SANTA FE SPRINGS, COUNTY LOS ANGELES CA 90670

Mailing Address:

NATechnical Contact Name: KARL BRUSKOTTERPublic Contact Name: TOBY ERICKSONLatitude: 033-55-55Telephone No: 562 906-8705Telephone No: 562-945-1383Longitude: 118-03-07Facility Type (Federal/GOCO/Commercial): COMMERCIALName of Parent Company: AIR LIQUIDE AMERICA CORPParent Company Dun & Bradstreet No: 064977424

SIC Code

2813Facility Dun &  
Bradstreet No064977424NAEPA ID No.  
(RCRA No.)CAD000021160NAFacility  
NPDES NoNAUnderground Injection  
Well Code (ID No.):NA

**CHEMICAL REPORT SUMMARY:**

\* Data for this chemical report (Form R or A) included in the Chemical Reports section of this FDP

File Number	Document Control Number	CAS No./ Category Code	Chemical/Generic/ Mixture Name	Original Post Mark Date	Post Mark Date	Received Date
Reporting Year: <u>1999</u>						
SU-00-00022361 0	13-99-135-15870-3	115071 *	PROPYLENE	06-29-2000	06-29-2000	07-10-2000

For Internal Use Only			
TRI Facility ID No	90670LQDRC8832D	Reporting Year	1999
Chemical Name	PROPYLENE		
Document Control Number	13-99-135-15870-3	Post Mark Date	06-29-2000
File Number	SU-00-00022361-0	Received Date	07-10-2000

**CHEMICAL REPORTS FOR THIS FACILITY OR ESTABLISHMENT:****PART I:**1.0 Reporting Year: 19992.0 Trade Secret Information: 2.1 Trade Secret: NO 2.2 Sanitized: NO3.0 Certification: Official Name: TOBY ERICKSON Title: PLANT MANAGER

Aaron Tesch

Date Signed: 06-28-2000

4.2 This Report Contains Information for:

4.5 SIC Code(s): 2813 - Primary SICa. An entire facility: YESb. Part of a facility: NOc. A Federal Facility: NO**PART II:**

1.0. Toxic Chemical Identity:

1.1. CAS Number or Chemical Category Code: 1150711.2. Toxic Chemical or Chemical Category Name: PROPYLENE1.3. Generic Chemical Name: NA

2.0. Mixture Component Identity:

2.1. Generic Chemical Name Provided By Supplier: NA

3.0 Activities and Uses of the Toxic Chemical at the Facility:

3.1 Manufacture the toxic chemical:

If Produce or Import:

A. Produce: NOC. For on-site use/processing: NOD. For sale/distribution: NOB. Import: NOE. As a byproduct: NOF. As an Impurity: NO

3.2. Process the toxic chemical:

A. As a reactant: NOB. As a formulation component: NOC. As an article component: NOD. Repackaging: YES

3.3. Otherwise use the toxic chemical:

A. As a chemical processing aid: NOB. As a manufacture aid: NOC. Ancillary or other use: NO4.1. Maximum Amount of the Toxic Chemical On-Site at any Time During the Year: 03 Range from 1,000 To 9,999 (lb)

5.0 Quantity of the Toxic Chemical Entering Each Environmental Medium On-site

Air Emissions

A. Total  
ReleaseB. Basis of  
Estimate

5.1 FUGITIVE OR NON-POINT AIR EMISSIONS

22000-OTHER APPROACHES

5.2 STACK OR POINT AIR EMISSIONS

NA

DICE 01075

For Internal Use Only			
TRI Facility ID No	90670LQDRC8832D	Reporting Year	1999
Chemical Name	PROPYLENE		
Document Control Number	13-99-135-15870-3	Post Mark Date	06-29-2000
File Number	SU-00-00022361-0	Received Date	07-10-2000

5.3 Discharges to Receiving Streams or Water Bodies  
Stream or water body name:

A. Total  
Release

B. Basis of  
Estimate

C. % from  
Stormwater

5.3.1 NA

Underground Injection/Land Disposal

A. Total  
Release

B. Basis of  
Estimate

5.4.1 Underground Injection On-Site To Class I Wells NA

5.4.2 Underground Injection On-Site To Class II-V Wells NA

5.5.1A Rcra Subtitle C Landfills NA

5.5.1B Other Landfills NA

5.5.2 Land Treatment / Application Farming NA

5.5.3 Surface Impoundment NA

5.5.4 Other Disposal NA

6.0 Transfers of the Toxic Chemical in Waste to Off-site Locations

6.1 Discharges to Publicly Owned Treatment Works (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1 Total Transfers. NA

6.1.A.2 Basis of Estimate:

6.1.B.1 POTW NAME

POTW Address:

City: County: State: Zip:

6.2 Transfers to Other Off-site Locations

6.2.1 Off-Site EPA Identification Number (RCRA ID No.) NA

Off-Site Location Name: NA

Off-site Address:

City: State: County: Country: Zip:

Location under control of reporting facility or parent company:

Total  
Transfers

Basis of  
Estimate

Type of Waste Treatment/Disposal/  
Recycling/Energy Recovery

1

7A On-Site Waste Treatment Methods & Efficiency

7A.1 a General Waste Stream: NA

c. Range of Influent Concentration:

d. Waste Treatment Efficiency Estimate(%):

e. Based on Operating Data:

b Waste Treatment Method Sequence:

7B On-site Energy Recovery Processes

1.

N/A

7C On-site Recycling Processes

1.

N/A



**For Internal Use Only**

TRI Facility ID No.	90670LODRC8832D	Reporting Year	1999
Chemical Name	PROPYLENE		
Document Control Number	13-99-135-15870-3	Post Mark Date	06-29-2000
File Number	SU-00-00022361-0	Received Date	07-10-2000

**8.0 Source Reduction & Recycling Activities**

Col. A  
Prior  
Year

Col. B  
Current  
Year

Col. C  
Following  
Year

Col. D  
Second Following  
Year

8.1	Quantity Released	0	0	N/A	N/A
8.2	Quantity Used For Energy Recovery On-Site	0	0	N/A	N/A
8.3	Quantity Used For Energy Recovery Off-Site	0	0	N/A	N/A
8.4	Quantity Recycled On-Site	0	0	N/A	N/A
8.5	Quantity Recycled Off-Site	0	0	N/A	N/A
8.6	Quantity Treated On-Site	0	0	N/A	N/A
8.7	Quantity Treated Off-Site	0	0	N/A	N/A
8.8	Quantity Released as a Result of Remedial, Catastrophic, or One Time Events			0	
8.9	Production Ratio or Activity Index			0	

**8.10 Source Reduction Activities**

Method A

Method B

Method C

8.10.1 W 2.5

T 1.1

## For Internal Use Only

TRI Facility ID No.	90670LQDRC8832D	Reporting Year	1999
Chemical Name	PROPYLENE		
Document Control Number	13499-135-15870-3	Post Mark Date	06-29-2000
File Number	SU-00-00022361-0	Received Date	07-10-2000

## ERRORS IDENTIFIED IN THIS REPORT

If we indicate in this section that you have provided invalid data, or if you discover that we omitted or inaccurately altered your submitted data, please provide corrections in the following manner:

- Correct the error in the space provided in this section.
- Mark through the erroneous value in the Facility Information or Chemical Report section and write the correct value next to it.
- If we inform you of a disk processing error, please provide a new disk.

PARAGRAPH: II.7B ON-SITE ENERGY RECOVER PROCESSES.

ERROR: There are no data in Part II, section 7B. If no on-site energy recovery processes are used for this Section 313 chemical at your facility, indicate "NA."; otherwise please provide at least one three-character on-site energy recovery process code.

YOUR CORRECTION:

N/A

PARAGRAPH: II.7C ON-SITE RECYCLING PROCESSES

ERROR: There are no data in Part II, section 7C. If no on-site recycling processes are used for this Section 313 chemical at your facility, indicate "NA."; otherwise please provide at least one three-character on-site recycling process code.

YOUR CORRECTION:

N/A

PARAGRAPH: II.8.1A SOURCE REDUCTION AND RECYCLING ACTIVITIES. QUANTITY RELEASED COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION:

Column A+B = 0  
Column C+D = NA } for Sections 8.1 thru 8.7

PARAGRAPH: II.8.2A SOURCE REDUCTION AND RECYCLING ACTIVITIES. QUANTITY USED FOR ENERGY RECOVERY ON-SITE COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION:

Column A+B = 0  
Column C+D = NA

For Internal Use Only			
TRI Facility ID No.	90676LQDRC8832D	Reporting Year	1999
Chemical Name	PROPYLENE		
Document Control Number	13-99-135-15870-3	Post Mark Date	06-29-2000
File Number	SU-00-00022361-0	Received Date	07-10-2000

PARAGRAPH: II.8.3A SOURCE REDUCTION AND RECYCLING ACTIVITIES QUANTITY USED FOR ENERGY RECOVERY OFF-SITE COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION: Column A + B = 0

Column C + D = NA

PARAGRAPH: II.8.4A SOURCE REDUCTION AND RECYCLING ACTIVITIES QUANTITY RECYCLED ON-SITE COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION: Column A + B = 0

Column C + D = NA

PARAGRAPH: II.8.5A SOURCE REDUCTION AND RECYCLING ACTIVITIES QUANTITY RECYCLED OFF-SITE COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION: Column A + B = 0

Column C + D = NA

PARAGRAPH: II.8.6A SOURCE REDUCTION AND RECYCLING ACTIVITIES QUANTITY TREATED ON-SITE COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION: Column A + B = 0

Column C + D = NA

PARAGRAPH: II.8.7A SOURCE REDUCTION AND RECYCLING ACTIVITIES QUANTITY TREATED OFF-SITE COLUMN A PRIOR YEAR

ERROR: There are missing data for Part II, Section 8.1 - 8.7. Please provide an estimate or "NA" (Not Applicable) in each box for section 8.1 - 8.7, columns A, B, C, and D. You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION: Column A + B = 0

Column C + D = NA

PARAGRAPH: II.8.8 SOURCE REDUCTION AND RECYCLING ACTIVITIES ONE TIME RELEASE

ERROR: There are missing data in Part II, Section 8.8. Please provide an estimate or "NA" (Not Applicable). You may only use "NA" (Not Applicable) when there is no possibility a release or transfer occurred. You may enter zero if the release or transfer was equal to or less than half a pound.

YOUR CORRECTION: 0

PARAGRAPH: II.8.9 SOURCE REDUCTION AND RECYCLING ACTIVITIES PRODUCTION RATIO OR ACTIVITY INDEX

ERROR: There are no data in Part II, Section 8.9. Please provide a production ratio, an activity index, or "NA" (Not Applicable) if the chemical manufacture or use began during the current reporting year

YOUR CORRECTION: 0

DICE 01079

For Internal Use Only			
TRI Facility ID No	90670LQDRC8832D	Reporting Year	1999
Chemical Name	PROPYLENE		
Document Control Number	13-99-135-15870-3	Post Mark Date	06-29-2000
File Number	SU-00-00022361-0	Received Date	07-10-2000

**PARAGRAPH: II.8.10 SOURCE REDUCTION ACTIVITIES TO IDENTIFY ACTIVITY**

**ERROR:** There are no data in Part II, Section 8.10. If your facility did not engage in any source reduction activity for the reported chemical, enter "NA" (Not Applicable) and answer 8.11. Otherwise please provide Source Reduction Activities and Methods code(s)

**YOUR CORRECTION:** 8.10.1 WAS a. TII  
8.10.2 WS8  
8.10.3 W89

**PARAGRAPH: II.5, 6, 8.1-8 MULTI PARAGRAPH**

**ERROR:** You did not complete Section 8.1 - 8.7 column B or 8.8. If you report releases in Part II, Section 5 and/or an off-site transfer in Section 6.2 and/or quantities transferred off-site to POTWs in Section 6.1, you must report an estimate in Part II, Section 8.1 through 8.7 column B and/or Section 8.8.

**YOUR CORRECTION:**

0

<b>EPA FORM R</b>		TRI Facility ID Number		
<b>PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)</b>		Toxic Chemical, Category or Generic Name		
<b>SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES</b>				
<input checked="" type="checkbox"/> Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.				
Energy Recovery Methods (enter 3-character code(s))				
1	2	3	4	
<b>SECTION 7C. ON-SITE RECYCLING PROCESSES</b>				
<input checked="" type="checkbox"/> Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.				
Recycling Methods (enter 3-character code(s))				
1.	2.	3.	4.	
5.	6.	7.	8.	
<b>SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES</b>				
	Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1 Quantity released ***	0	0	N/A	N/A
8.2 Quantity used for energy recovery onsite	0	0	N/A	N/A
8.3 Quantity used for energy recovery offsite	0	0	N/A	N/A
8.4 Quantity recycled onsite	0	0	N/A	N/A
8.5 Quantity recycled offsite	0	0	N/A	N/A
8.6 Quantity treated onsite	0	0	N/A	N/A
8.7 Quantity treated offsite	0	0	N/A	N/A
8.8 Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9 Production ratio or activity index			0	
8.10	Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.			
	Source Reduction Activities (enter code(s))	Methods to Identify Activity (enter codes)		
8.10.1	W 25	a. T11	b.	c.
8.10.2	W 58	a.	b.	c.
8.10.3	W 89	a.	b.	c.
8.10.4		a.	b.	c.
8.11	Is additional information on source reduction, recycling, or pollution control activities included with this report? (Check one box)			YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>

United States  
Environmental Protection AgencyTOXIC CHEMICAL RELEASE INVENTORY  
FORM AWHERE TO SEND COMPLETED FORMS: 1 TRI Data Processing Center  
P O Box 1513  
Lanham, MD 20703-1513  
ATTN: TOXIC CHEMICAL RELEASE INVENTORY  
2 APPROPRIATE STATE OFFICE  
(See instructions in Appendix F)Enter "X" here if this  
is a revision

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

## PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 2002

## SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 trade secret?  
☐ Yes (Answer question 2.2. Attach substantiation forms) ☒ No (Do not answer 2.2. Go to Section 3)

2.2 Is this copy ☐ Sanitized ☐ Unsanitized  
 (Answer only if "YES" in 2.1)

## SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

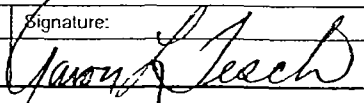
I hereby certify that to the best of my knowledge and belief, for each toxic chemical listed in the statement, the annual reportable amount as defined in 40 CFR 372.27 (a), did not exceed 500 pounds for this reporting year and that the chemical was manufactured, processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year.

Name and official title of owner/operator or senior management official

Signature:

Date Signed:

Aaron Tesch

  
 5/23/03

## SECTION 4. FACILITY IDENTIFICATION

4.1 TRI Facility ID Number

Facility or Establishment Name: Air Liquide America

Facility or Establishment Name or Mailing Address (if different from street address):

Street: 8832 Dixie Rd

Mailing Address: same

City/County/State/Zip Code: Santa Fe Springs, CA 90670

City/State/Zip Code: Country (Non-US):

4.2 This report contains information for (Important: check c or d if applicable)

c ☐ A Federal facility d ☐ GOCO

4.3 Technical Contact Name: Josh Mermelstein

Telephone Number (include area code): 562 464 5241

Email Address: joshua.mermelstein @ air liquide.com

4.4 Intentionally left blank

4.5 SIC Code (s) (4 digits)

Primary a. 25 b. 81 c. 6 d. 9 e. f.

4.6 Latitude: Degrees 33 Minutes 57 Seconds 0 Longitude: Degrees 118 Minutes 3 Seconds 7

4.7 Dun & Bradstreet Number(s) (9 digits): a. 06-447-7424 b.

4.8 EPA Identification Number (RCRA ID No.) (12 characters): a. CA1000021160 b.

4.9 Facility NPDES Permit Number(s) (9 characters): a. b.

4.10 Underground Injection Well Code (UIC) ID Number(s) (12 digits): a. b.

## SECTION 5. PARENT COMPANY INFORMATION

5.1 Name of Parent Company: NA ☒5.2 Parent Company's Dun & Bradstreet Number: NA ☒

**EPA FORM A**  
**PART II. CHEMICAL IDENTIFICATION**

TRIFID:

Do not use this form for reporting PBT chemicals including Dioxin and Dioxin-like Compounds\*

**SECTION 1. TOXIC CHEMICAL IDENTITY**

Report \_\_\_ of \_\_\_

1.1

CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)

115-07-1

1.2

Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)

Propylene

1.3

Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)

Propylene

**SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)**

2.1

Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

**SECTION 1. TOXIC CHEMICAL IDENTITY**

Report \_\_\_ of \_\_\_

1.1

CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)

1.2

Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)

1.3

Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)

**SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)**

2.1

Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

**SECTION 1. TOXIC CHEMICAL IDENTITY**

Report \_\_\_ of \_\_\_

1.1

CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)

1.2

Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)

1.3

Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)

**SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)**

2.1

Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

**SECTION 1. TOXIC CHEMICAL IDENTITY**

Report \_\_\_ of \_\_\_

1.1

CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)

1.2

Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)

1.3

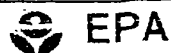
Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)

**SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)**

2.1

Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

\* See the TRI Reporting Forms and Instructions Manual for the list of PBT Chemicals (including Dioxin and Dioxin-like Compounds)

**FORM R****TOXIC CHEMICAL RELEASE  
INVENTORY REPORTING FORM**United States  
Environmental Protection  
AgencySection 313 of the Emergency Planning and Community Right-to-Know Act of 1986,  
also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center  
P O Box 3348  
Merrifield, VA 22116-3348  
ATTN: TOXIC CHEMICAL RELEASE INVENTORY

2. APPROPRIATE STATE OFFICE  
(See instructions in Appendix F)

Enter "X" here if this  
is a revision

For EPA use only

**Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.****PART I. FACILITY IDENTIFICATION INFORMATION****SECTION 1. REPORTING YEAR 1999****SECTION 2. TRADE SECRET INFORMATION**

2.1 Are you claiming the toxic chemical identified on page 2 trade secret?  
☐ Yes (Answer question 2.2, Attach substantiation forms) ☒ No (Do not answer 2.2, Go to Section 3)

2.2 Is this copy ☐ Sanitized ☐ Unsanitized  
(Answer only if "YES" in 2.1)

**SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)**

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report

Name and official title of owner/operator or senior management official	Signature	Date Signed
TOBY ERICKSON PLANT MANAGER		06/26/2000

**SECTION 4. FACILITY IDENTIFICATION**

4.1	TRI Facility ID Number		NEW F-ACIL-ITY123		
Facility or Establishment Name		Facility or Establishment Name or Mailing Address (if different from street address)			
AIR LIQUIDE AMERICA CORPORATION					
Street		Mailing Address			
8632 DICE ROAD					
City/County/State/Zip Code		City/County/State/Zip Code			
SANTA FE SPRINGS LOS ANGELES CA 90670-					
4.2	This report contains information for (Important: check a or b, check c if applicable)				
	a	<input checked="" type="checkbox"/> An entire facility	b	<input type="checkbox"/> Part of a facility	
	c	<input type="checkbox"/> A Federal facility			
4.3	Technical Contact Name		Telephone Number (include area code)		
	KARL BRUSKOTTER		(562) 906 - 8705		
4.4	Public Contact Name		Telephone Number (include area code)		
	TOBY ERICKSON		(562) 945 - 1383		
4.5	SIC Code (s) (4 digits)		Primary		
	a.	2813	b.	c.	d.
4.6	Latitude	Degrees	Minutes	Seconds	Longitude
		033	55	55	Degrees
					118
					03
					07
4.7	Dun & Bradstreet Number(s) (9 digits)	4.8	EPA Identification Number (RCRA I.D. No.) (12 characters)	4.9	Facility NPDES Permit Number(s) (9 characters)
a.	064977424	a.	CAL000021160	a.	NA
b.	NA	b.	NA	b.	NA
4.10	Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)				

**SECTION 5. PARENT COMPANY INFORMATION**

5.1	Name of Parent Company	NA	AIR LIQUIDE AMERICA
5.2	Parent Company's Dun & Bradstreet Number	NA	064977424



**EPA FORM R**  
**PART II. CHEMICAL-SPECIFIC INFORMATION**

RI Facility ID Number

NEW F-ACILI-TY123

Toxic Chemical, Category or Generic Name

PROPYLENE

**SECTION 1. TOXIC CHEMICAL IDENTITY**

(Important: DO NOT complete this section if you completed Section 2 below.)

1.1 CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)

000115071

1.2 Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)

PROPYLENE

1.3 Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes" Generic Name must be structurally descriptive.)

NA

**SECTION 2. MIXTURE COMPONENT IDENTITY**

(Important: DO NOT complete this section if you completed Section 1 above.)

2.1 Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

NA

**SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY**

(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:

3.2 Process the toxic chemical:

3.3 Otherwise use the toxic chemical:

a. ☐ Produce b. ☐ Import

If produce or import:

c. ☐ For on-site use/processingd. ☐ For sale/distributione. ☐ As a byproductf. ☐ As an impuritya. ☐ As a reactantb. ☐ As a formulation componentc. ☐ As an article componentd. ☒ Repackaginga. ☐ As a chemical processing aidb. ☐ As a manufacturing aidc. ☐ Ancillary or other use**SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR**4.1  (Enter two-digit code from instruction package)**SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE**

		A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA <input type="checkbox"/>	2200	O
5.2	Stack or point air emissions	NA <input checked="" type="checkbox"/>	NA	
5.3	Discharges to receiving streams or water bodies (enter one name per box)			
Stream or Water Body Name				
5.3.1	NA			
5.3.2				
5.3.3				
5.4.1	Underground Injection onsite to Class I Wells	NA <input checked="" type="checkbox"/>	NA	
5.4.2	Underground Injection onsite to Class II-V Wells	NA <input checked="" type="checkbox"/>	NA	

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box and indicate the Part II, Section 5.3 page number in this box.  (example: 1,2,3, etc.)

- 1

DICE 01085

## EPA FORM R

## PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

Facility ID Number

NEW FACILITY123

Toxic Chemical, Category or Generic Name

PROPYLENE

## SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

	NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5 Disposal to land onsite			
5.5.1A RCRA Subtitle C landfills	<input checked="" type="checkbox"/>	NA	
5.5.1B Other landfills	<input checked="" type="checkbox"/>	NA	
5.5.2 Land treatment/application farming	<input checked="" type="checkbox"/>	NA	
5.5.3 Surface Impoundment	<input checked="" type="checkbox"/>	NA	
5.5.4 Other disposal	<input checked="" type="checkbox"/>	NA	

## SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

## 6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

## 6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year)  
(enter range code\* or estimate)6.1.A.2 Basis of Estimate  
(enter code)

NA

6.1.B.1

POTW Name

NA

POTW Address

City

State

County

Zip

6.1.B.2

POTW Name

POTW Address

City

State

County

Zip

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages

in this box  and indicate the Part II, Section 6.1 page number in this box  (example: 1,2,3, etc.)

## SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1 Off-Site EPA Identification Number (RCRA ID No.)

NA

Off-Site Location Name

NA

Off-Site Address

City

State

County

Zip

Is location under control of reporting facility or parent company?

☐

Yes

☐

No

## EPA FORM R

## PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

Facility ID Number

NEW FACILITY123

Toxic Chemical, Category or Generic Name

PROPYLENE

## SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2.2 Off-Site EPA Identification Number (RCRA ID No )

Off-Site location Name

Off-Site Address

City

State

County

Zip

Is location under control of reporting facility or parent company?

☐ Yes☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

## SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ X

Not Applicable (NA) -

Check here if no on-site waste treatment is applied to any

waste stream containing the toxic chemical or chemical category

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence (enter 3-character code(s))	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b	7A.1c	7A.1d	7A.1e
NA	3		%	Yes No
	6			<input type="checkbox"/> <input type="checkbox"/>
7A.2a	7A.2b	7A.2c	7A.2d	7A.2e
	3		%	Yes No
	6			<input type="checkbox"/> <input type="checkbox"/>
7A.3a	7A.3b	7A.3c	7A.3d	7A.3e
	3		%	Yes No
	6			<input type="checkbox"/> <input type="checkbox"/>
7A.4a	7A.4b	7A.4c	7A.4d	7A.4e
	3		%	Yes No
	6			<input type="checkbox"/> <input type="checkbox"/>
7A.5a	7A.5b	7A.5c	7A.5d	7A.5e
	3		%	Yes No
	6			<input type="checkbox"/> <input type="checkbox"/>

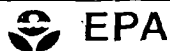
If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box

and indicate the Part II, Section 6.2/7A page number in this box :

1

(example: 1,2,3, etc)

1



United States  
Environmental Protection  
Agency

**FORM R****TOXIC CHEMICAL RELEASE  
INVENTORY REPORTING FORM**

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,  
also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1 EPCRA Reporting Center 2. APPROPRIATE STATE OFFICE  
P O Box 3348 (See instructions in Appendix F)  
Merrifield, VA 22116-3348  
ATTN TOXIC CHEMICAL RELEASE INVENTORY

Enter "X" here if this  
is a revision

For EPA use only

**Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.**

**PART I. FACILITY IDENTIFICATION INFORMATION****SECTION 1. REPORTING YEAR 1999****SECTION 2. TRADE SECRET INFORMATION**

**2.1** Are you claiming the toxic chemical identified on page 2 trade secret?  
☐ Yes (Answer question 2.2, Attach substantiation forms) ☒ No (Do not answer 2.2, Go to Section 3)

**2.2** Is this copy ☐ Sanitized ☐ Unsanitized  
(Answer only if "YES" in 2.1)

**SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)**

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report

Name and official title of owner/operator or senior management official	Signature	Date Signed
TOBY ERICKSON PLANT MANAGER	<i>Toby Erickson</i>	06/28/2000

**SECTION 4. FACILITY IDENTIFICATION**

<b>4.1</b>	TRI Facility ID Number	NEW FACILITY123
Facility or Establishment Name		Facility or Establishment Name or Mailing Address (if different from street address)
AIR LIQUIDE AMERICA CORPORATION		
Street		Mailing Address
8832 DICE ROAD		
City/County/State/Zip Code		City/County/State/Zip Code
SANTA FE SPRINGS LOS ANGELES CA 90670-		
<b>4.2</b>	This report contains information for (Important: check a or b; check c if applicable)	
	a <input checked="" type="checkbox"/> An entire facility	b <input type="checkbox"/> Part of a facility c <input type="checkbox"/> A Federal facility
<b>4.3</b>	Technical Contact Name	Telephone Number (include area code)
	KARL BRUSKOTTER	(562) 906 - 8705
<b>4.4</b>	Public Contact Name	Telephone Number (include area code)
	TOBY ERICKSON	(562) 945 - 1383
<b>4.5</b>	SIC Code (s) (4 digits)	
	Primary a. 2813 b. c. d. e. f.	
<b>4.6</b>	Latitude	Longitude
	Degrees 033 Minutes 55 Seconds 55	Degrees 118 Minutes 03 Seconds 07
<b>4.7</b>	Dun & Bradstreet Number(s) (9 digits)	<b>4.8</b> EPA Identification Number (RCRA I.D. No.) (12 characters)
a. 064977424	a. CAL000021160	<b>4.9</b> Facility NPDES Permit Number(s) (9 characters)
b. NA	b. NA	a. NA
		b. NA
<b>4.10</b>	Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)	

**SECTION 5. PARENT COMPANY INFORMATION**

<b>5.1</b>	Name of Parent Company	NA <input type="checkbox"/>	AIR LIQUIDE AMERICA
<b>5.2</b>	Parent Company's Dun & Bradstreet Number	NA <input type="checkbox"/>	064977424

**DICE 01088**

**EPA FORM R**  
**PART II. CHEMICAL-SPECIFIC INFORMATION**

TRI Facility ID Number

NEW FACILITY123

Toxic Chemical, Category or Generic Name

PROPYLENE

**SECTION 1. TOXIC CHEMICAL IDENTITY**

(Important: DO NOT complete this section if you completed Section 2 below.)

<b>1.1</b>	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000115071
<b>1.2</b>	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	PROPYLENE
<b>1.3</b>	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)
	NA

**SECTION 2. MIXTURE COMPONENT IDENTITY**

(Important: DO NOT complete this section if you completed Section 1 above.)

<b>2.1</b>	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation)
	NA

**SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY**

(Important: Check all that apply.)

<b>3.1</b>	Manufacture the toxic chemical	<b>3.2</b>	Process the toxic chemical	<b>3.3</b>	Otherwise use the toxic chemical
a. <input type="checkbox"/> Produce    b. <input type="checkbox"/> Import If produce or import c. <input type="checkbox"/> For on-site use/processing d. <input type="checkbox"/> For sale/distribution e. <input type="checkbox"/> As a byproduct f. <input type="checkbox"/> As an impurity		a. <input type="checkbox"/> As a reactant b. <input type="checkbox"/> As a formulation component c. <input type="checkbox"/> As an article component d. <input checked="" type="checkbox"/> Repackaging		a. <input type="checkbox"/> As a chemical processing aid b. <input type="checkbox"/> As a manufacturing aid c. <input type="checkbox"/> Ancillary or other use	

**SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR**

<b>4.1</b>	03 (Enter two-digit code from instruction package)
------------	--

**SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE**

		A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of Estimate (enter code)	C. % From Stormwater
<b>5.1</b>	Fugitive or non-point air emissions	NA <input type="checkbox"/>	2200	0
<b>5.2</b>	Stack or point air emissions	NA <input checked="" type="checkbox"/>	NA	
<b>5.3</b>	Discharges to receiving streams or water bodies (enter one name per box)			
Stream or Water Body Name				
<b>5.3.1</b>	NA			
<b>5.3.2</b>				
<b>5.3.3</b>				
<b>5.4.1</b>	Underground Injection onsite to Class I Wells	NA <input checked="" type="checkbox"/>	NA	
<b>5.4.2</b>	Underground Injection onsite to Class II-V Wells	NA <input checked="" type="checkbox"/>	NA	

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box and indicate the Part II, Section 5.3 page number in this box.

1 (example: 1,2,3, etc.)

1

**DICE 01089**

**EPA FORM R**  
**PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)**

TRI Facility ID Number

NEW F-ACILI-TY123

Toxic Chemical, Category or Generic Name

PROPYLENE

**SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)**

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	<input checked="" type="checkbox"/>	NA	
5.5.1B	Other landfills	<input checked="" type="checkbox"/>	NA	
5.5.2	Land treatment/application farming	<input checked="" type="checkbox"/>	NA	
5.5.3	Surface Impoundment	<input checked="" type="checkbox"/>	NA	
5.5.4	Other disposal	<input checked="" type="checkbox"/>	NA	

**SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS**

**6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)**

**6.1.A Total Quantity Transferred to POTWs and Basis of Estimate**

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B.1	POTW Name	NA					
POTW Address							
City		State		County		Zip	
6.1.B.2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages

in this box  and indicate the Part II, Section 6.1 page number in this box  (example: 1,2,3, etc.)

**SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS**

6.2.1	Off-Site EPA Identification Number (RCRA ID No.)	NA					
Off-Site Location Name		NA					
Off-Site Address							
City		State		County		Zip	
Is location under control of reporting facility or parent company?							
						<input type="checkbox"/> Yes	<input type="checkbox"/> No

DICE 01090



**AIR LIQUIDE**

9756 SANTA FE SPRINGS ROAD  
SANTA FE SPRINGS, CA 90670

EPCRA Reporting Center  
c/o Computer Based Systems, Inc.  
Suite 300  
4600 North Fairfax Drive  
Arlington, VA 22203

First Class

703-816-4445



**AIR LIQUIDE**

9756 SANTA FE SPRINGS ROAD  
SANTA FE SPRINGS, CA 90670

Mr. Stephen Hanna  
California Environmental Protection Agency  
Department of Toxic Substance Control  
P.O. Box 806  
Sacramento, CA 95812-0806

First Class

DICE 01091

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:

EPCRA Reports

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 298

Postmark  
Here

Name (Please Print Clearly) (To be completed by mailer)

Toby

Street, Apt. No.; or PO Box No.

City, State, ZIP+4

PS Form 3800, July 1999

See Reverse for Instructions

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

Article Sent To:

Stephen Hanna

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 298

Postmark  
Here

Name (Please Print Clearly) (To be completed by mailer)

Toby

Street, Apt. No.; or PO Box No.

City, State, ZIP+4

PS Form 3800, July 1999

See Reverse for Instructions

Domestic Return Receipt

102595-97-B-0-179

PS Form 3811, December 1994

Thank you for using Return Receipt Service.

1. <input type="checkbox"/> Addressee's Address following services (for an extra fee): 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.		3. Article Addressed to: EPCRA Reporting Center C/O Computer Based Systems, Inc. Suite 300 4600 North Fairfax Drive Arlington, Va 22203 703-816-4445	
4a. Article Number		5. Received By (Print Name) P.O. Box 3348 Richmond, VA 22116-3348	
4b. Service Type <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Registered <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD		6. Signature: [Signature] 7. Date of Delivery	
8. Addressee's Address (Only if requested and fee is paid)		9. Signature: [Signature]	

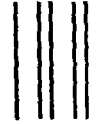
**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

Is your RETURN ADDRESS completed on the reverse side?



UNITED STATES POSTAL SERVICE



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

**AIR LIQUIDE AMERICA CORPORATION  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670**

**Certified Mail Provides:**

- A mailing receipt
- A unique identifier for your mailpiece
- A signature upon delivery
- A record of delivery kept by the Postal Service for two years

**Important Reminders:**

- Certified Mail may **ONLY** be combined with First-Class Mail or Priority Mail.
- Certified Mail is not available for any class of international mail
- **NO INSURANCE COVERAGE IS PROVIDED** with Certified Mail. For valuables, please consider Insured or Registered Mail.
- For an additional fee, a Return Receipt may be requested to provide proof of delivery. To obtain Return Receipt service, please complete and attach a Return Receipt (PS Form 3811) to the article and add applicable postage to cover the fee. Endorse mailpiece "Return Receipt Requested". To receive a fee waiver for a duplicate return receipt, a USPS postmark on your Certified Mail receipt is required.
- For an additional fee, delivery may be restricted to the addressee or addressee's authorized agent. Advise the clerk or mark the mailpiece with the endorsement "Restricted Delivery".
- If a postmark on the Certified Mail receipt is desired, please present the article at the post office for postmarking. If a postmark on the Certified Mail receipt is not needed, detach and affix label with postage and mail.

**IMPORTANT: Save this receipt and present it when making an inquiry.**

PS Form 3800, July 1999 (Reverse)

102595-99-M-1938

**Certified Mail Provides:**

- A mailing receipt
- A unique identifier for your mailpiece
- A signature upon delivery
- A record of delivery kept by the Postal Service for two years

**Important Reminders:**

- Certified Mail may **ONLY** be combined with First-Class Mail or Priority Mail
- Certified Mail is not available for any class of international mail
- **NO INSURANCE COVERAGE IS PROVIDED** with Certified Mail. For valuables, please consider Insured or Registered Mail.
- For an additional fee, a Return Receipt may be requested to provide proof of delivery. To obtain Return Receipt service, please complete and attach a Return Receipt (PS Form 3811) to the article and add applicable postage to cover the fee. Endorse mailpiece "Return Receipt Requested". To receive a fee waiver for a duplicate return receipt, a USPS postmark on your Certified Mail receipt is required.
- For an additional fee, delivery may be restricted to the addressee or addressee's authorized agent. Advise the clerk or mark the mailpiece with the endorsement "Restricted Delivery".
- If a postmark on the Certified Mail receipt is desired, please present the article at the post office for postmarking. If a postmark on the Certified Mail receipt is not needed, detach and affix label with postage and mail.

**IMPORTANT: Save this receipt and present it when making an inquiry.**

PS Form 3800, July 1999 (Reverse)

102595-99-M-1938

DICE 01093

<b>EPA FORM R</b>		TRI Facility ID Number	
<b>PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)</b>		Toxic Chemical, Category or Generic Name	

  
**SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES**

☒ Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1  2  3  4

  
**SECTION 7C. ON-SITE RECYCLING PROCESSES**

☒ Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

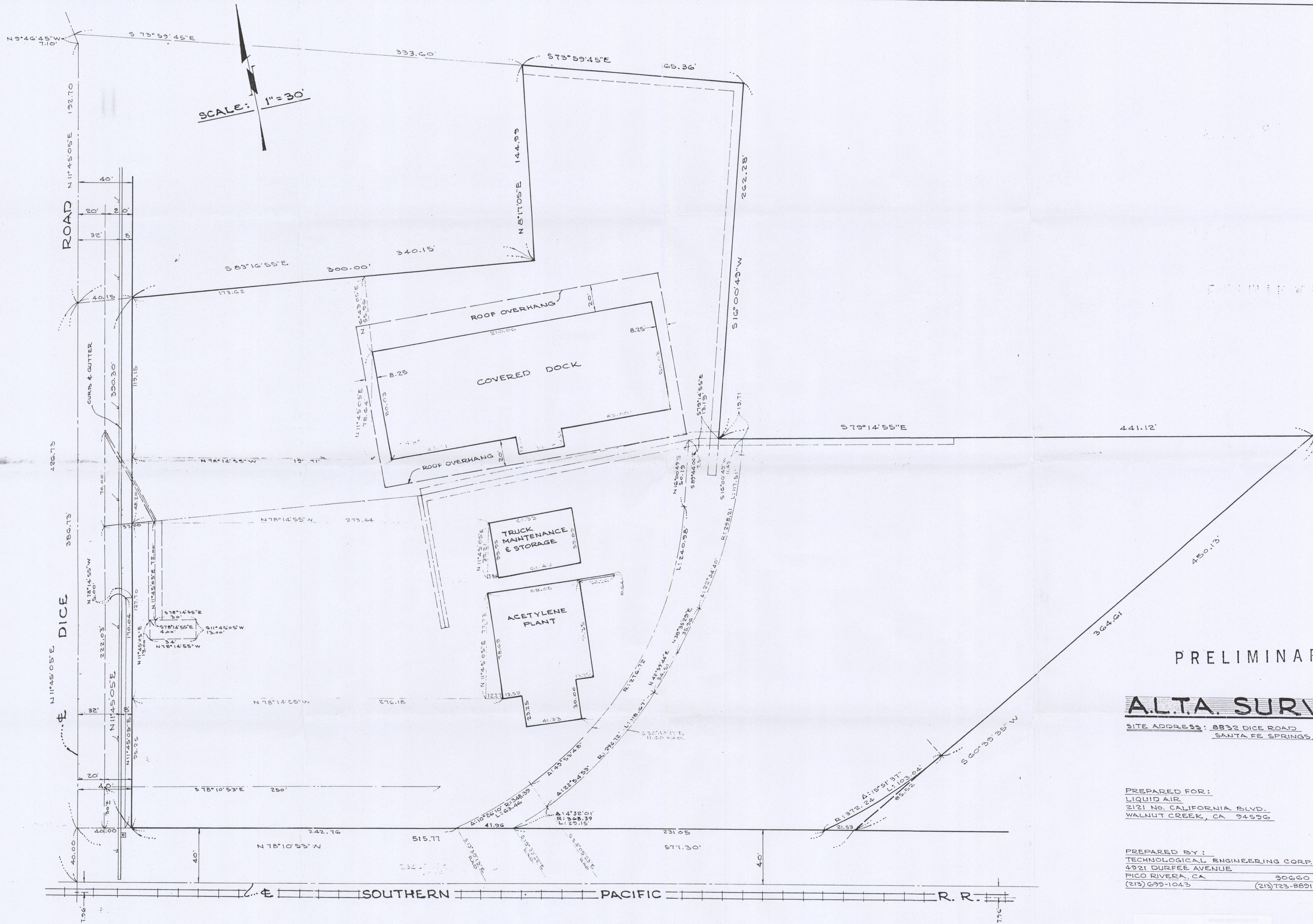
Recycling Methods [enter 3-character code(s)]

1.  2.  3.  4.  5.   
 6.  7.  8.  9.  10.

  
**SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES**

	Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1 Quantity released ***	0	0	N/A	N/A
8.2 Quantity used for energy recovery onsite	0	0	N/A	N/A
8.3 Quantity used for energy recovery offsite	0	0	N/A	N/A
8.4 Quantity recycled onsite	0	0	N/A	N/A
8.5 Quantity recycled offsite	0	0	N/A	N/A
8.6 Quantity treated onsite	0	0	N/A	N/A
8.7 Quantity treated offsite	0	0	N/A	N/A
8.8 Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)	0			
8.9 Production ratio or activity index	0			
8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.				
	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	W 25	a. T 11	b.	c.
8.10.2	W 58	a.	b.	c.
8.10.3	W 89	a.	b.	c.
8.10.4		a.	b.	c.
8.11 Is additional information on source reduction, recycling, or pollution control activities included with this report? (Check one box)			YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>







SHEET 1 OF 1 SHEETS

IN THE CITY OF SANTA FE SPRINGS COUNTY OF LOS ANGELES,  
STATE OF CALIFORNIA

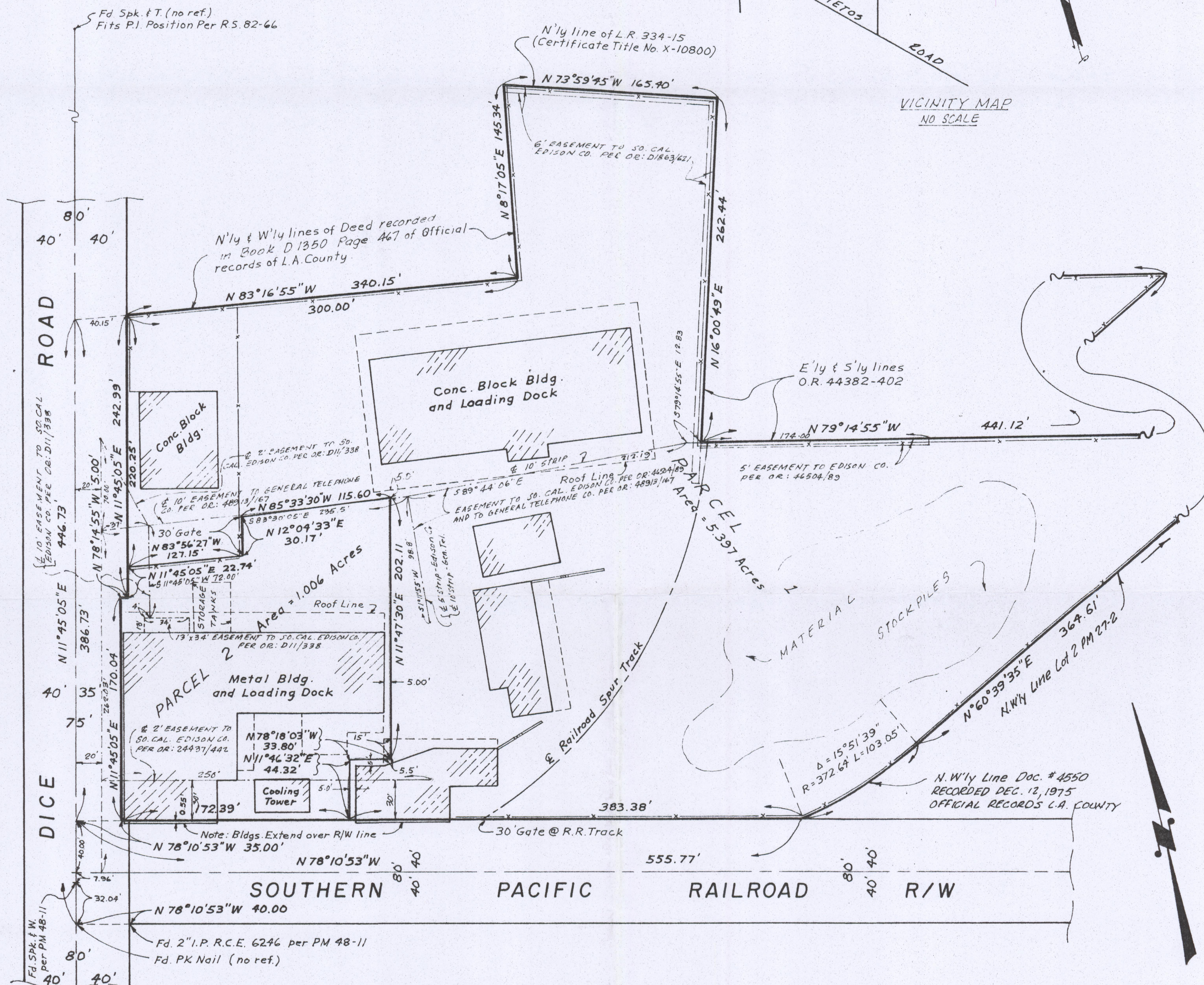
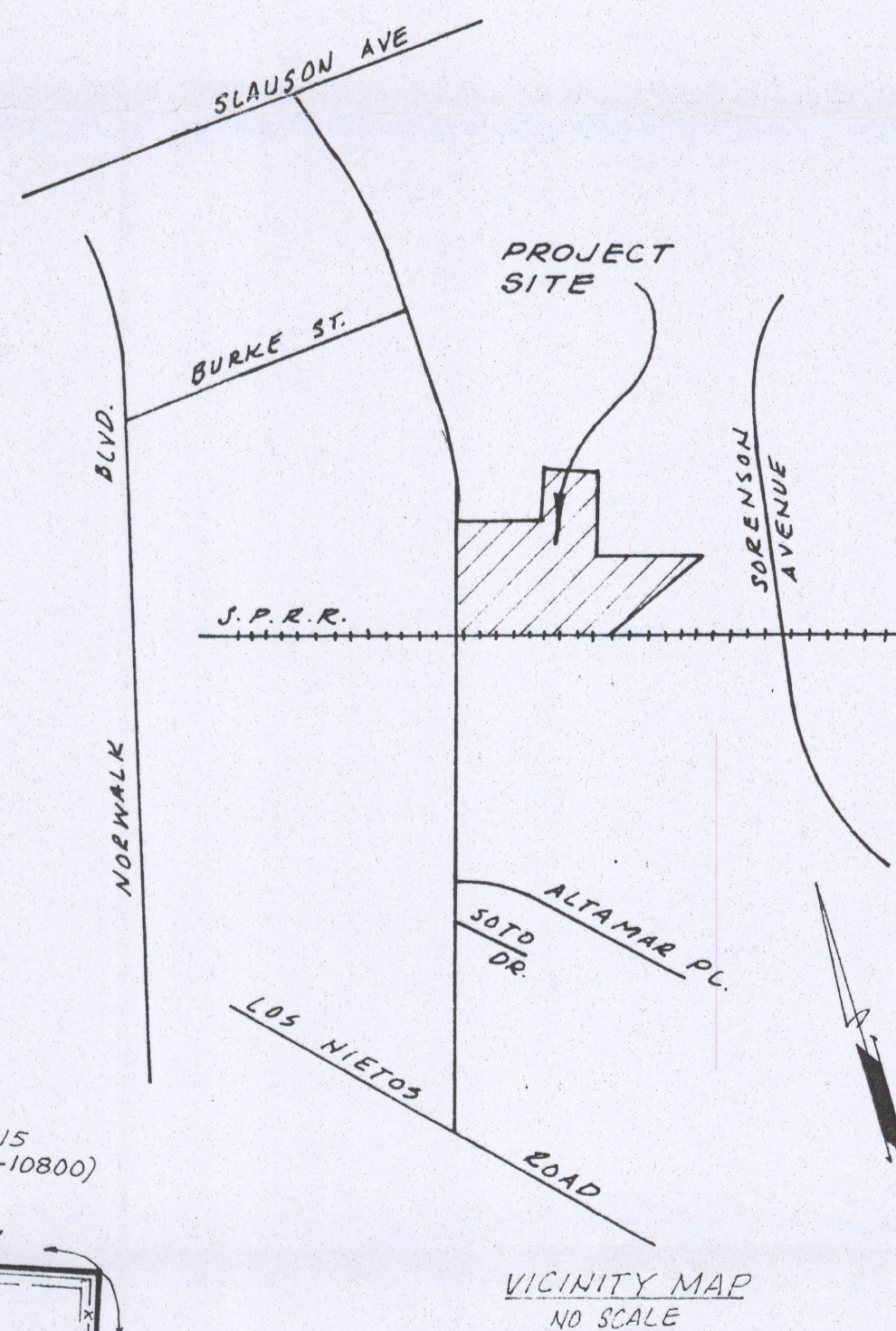
BEING A SUBDIVISION OF A PORTION OF THE COLIMA TRACT IN THE RANCHO SANTA GERTRUDES AS SHOWN ON CLERK'S FILED MAP NO. 157 ENTERED IN SUPERIOR COURT CASE NO. 4367 AND FILED IN THE OFFICE OF THE COUNTY ENGINEER OF LOS ANGELES COUNTY

AMERICAN CRYOGENICS INC. (A DELAWARE CORP.)  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670  
(213) 945-1383

ARIAN AND WILLESS, INC  
8716 CORD AVENUE  
PICO RIVERA, CA 90660  
(213) 949-5446

Ronald D. Britzman 5/27/80  
RONALD D. BRITZMAN L.S. 3813

NOTE:  
All existing structures will remain.





Chemical  
Inventory

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 1 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9

0 4

9 6

0 0

9 4

MAP# (optional)

GRID# (optional)

B4 (#39), C1

### II. CHEMICAL INFORMATION

CHEMICAL NAME

COMPRESSED AIR

COMMON NAME

COMPRESSED AIR

CAS #

N/A

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

EHS\*

☐ Yes ☒ No

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

100,000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

150000

MAXIMUM DAILY AMOUNT

150000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 100.00%

AIR

☐ Yes ☒ No

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01098

# Unified Program Consolidated Form

## HAZARDOUS MATERIALS INVENTORY

HAZARDOUS MATERIALS

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 2 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) B2, E1, H4

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ARGON GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ARGON GAS

EHS\*

☐ Yes ☒ No

CAS #

7440-37-1

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

110000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

200000

MAXIMUM DAILY  
AMOUNT

200000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*  
(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 100.00%

ARGON

☐ Yes ☒ No

7440-37-1

2 ☐ Yes ☒ No

3 ☐ Yes ☒ No

4 ☐ Yes ☒ No

5 ☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01099

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 3 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) E6, E7

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ARGON REFRIGERATED LIQUID

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

ARGON REFRIGERATED LIQUID

EHS\* ☐ Yes ☒ No

CAS #

7440-37-1

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER  
48000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

48000

MAXIMUM DAILY  
AMOUNT

48000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*  
(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE 365

Storage Container  
(Check all that apply)

☒ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☒ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	ARGON	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-37-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01100



# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 4 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

E1, H4

### II. CHEMICAL INFORMATION

CHEMICAL NAME

CARBON DIOXIDE GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

CARBON DIOXIDE GAS

EHS\*

☐ Yes ☒ No

CAS #

124-38-9

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

50

FED HAZARD CATEGORIES

(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY

AMOUNT

17000

MAXIMUM DAILY

AMOUNT

17000

ANNUAL WASTE

AMOUNT

0

STATE WASTE

CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON

SITE

365

Storage Container

(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☒ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1

CO2

☐ Yes ☒ No

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01101

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 5 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

E3 (#60)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

CARBON MONOXIDE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

CARBON MONOXIDE

EHS\*

☐ Yes ☒ No

CAS #

630-08-0

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

175

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

6000

MAXIMUM DAILY  
AMOUNT

10000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b. ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	CARBON MONOXIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	630-08-0
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01102

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 6 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 9 4

MAP# (optional) 1

GRID# (optional) B4 (#41)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

HELIUM LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

HELIUM LIQUID

EHS\*

☐ Yes ☒ No

CAS #

7440-59-7

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

13000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

13000

MAXIMUM DAILY  
AMOUNT

13000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☒ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☒ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1

LIQUID HELIUM

☐ Yes ☒ No

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01103

# Unified Program Consolidated Form

## HAZARDOUS MATERIALS INVENTORY

HAZARDOUS MATERIALS

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 7 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

☐ Yes ☒ No

EPCRA

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

B4 (#42), C1, E1

### II. CHEMICAL INFORMATION

CHEMICAL NAME

HELIUM GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

HELIUM GAS

EHS\*

☐ Yes ☒ No

CAS #

7440-59-7

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

200000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

0

MAXIMUM DAILY AMOUNT

600000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	HELIUM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-59-7
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01104

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 8 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 19049600094

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

HYDROGEN GAS

COMMON NAME

HYDROGEN GAS

CAS #

1333-74-0

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

EHS\*

☒ Yes ☐ No

\*If EHS is "Yes" all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

120000 CF

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

1560

MAXIMUM DAILY AMOUNT

1560

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\* (Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	HYDROGEN	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1333-74-0
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01105

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 9 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

E2, E3

### II. CHEMICAL INFORMATION

CHEMICAL NAME

METHANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

METHANE

EHS\*

☒ Yes ☐ No

CAS #

74-82-8

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

335

FED HAZARD CATEGORIES

(Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY

AMOUNT

0

MAXIMUM DAILY

AMOUNT

10000

ANNUAL WASTE

AMOUNT

0

STATE WASTE

CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON

SITE

365

Storage Container

(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other.

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	METHANE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	74-82-8
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01106

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 10 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) C1, E1, F1, H4, I4

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROGEN GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NITROGEN GAS

EHS\*

☐ Yes ☒ No

CAS #

7727-37-9

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

150000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

300000

MAXIMUM DAILY AMOUNT

300000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	NITROGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01107

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 11 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

☐ Yes ☒ No

EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROGEN REFRIGERATED LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

LIQUID NITROGEN

EHS\*

☐ Yes ☒ No

CAS #

7727-37-9

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

11000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

17000

MAXIMUM DAILY AMOUNT

17000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☒ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☒ d CRYOGENIC

	% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	99.90%	NITROGEN LIQUID	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7727-37-9
2			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01108



# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 12 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

1

GRID# (optional)

D2 (#33)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

SULFUR HEXAFLUORIDE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

SULFUR HEXAFLUORIDE

EHS\*

☐ Yes ☒ No

CAS #

2551-62-4

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

287

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

17250

MAXIMUM DAILY  
AMOUNT

17250

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

0

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 99 90%

SULFUR HEXAFLUORIDE

☐ Yes ☒ No

2551-62-4

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01109

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 13 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) E4 (#56), E6, C1, I4

### II. CHEMICAL INFORMATION

CHEMICAL NAME

OXYGEN GAS

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

OXYGEN GAS

EHS\*

☐ Yes ☒ No

CAS #

7782-44-5

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

OXIDIZER

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

140000

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☒ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

200000

MAXIMUM DAILY  
AMOUNT

250000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other.

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

	% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	99.90%	OXYGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7782-44-5
2			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01110

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 14 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

OXYGEN REFRIGERATED LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

LIQUID OXYGEN

EHS\*

☐ Yes ☒ No

CAS #

7782-44-7

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

11000

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire

☒ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

17000

MAXIMUM DAILY AMOUNT

17000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☒ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☒ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	OXYGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7782-44-7
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01111

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 15 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 9 4

MAP# (optional) 1

GRID# (optional) B3 (#36), D5

### II. CHEMICAL INFORMATION

CHEMICAL NAME

PETROLEUM BASED MOTOR OIL

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

MOTOR OIL

EHS\*

☐ Yes ☒ No

CAS #

8002-05-9

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

CL-III B

HAZARDOUS MATERIAL TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

55

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY AMOUNT

110

MAXIMUM DAILY AMOUNT

110

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

0

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS #

1 OIL

☐ Yes ☒ No

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01112

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 16 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

☐ Yes ☒ No

EPCRA

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

E7 (#17)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

PROPANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

PROPANE

EHS\*

☐ Yes ☒ No

CAS #

74-98-6

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

4200

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

5000

MAXIMUM DAILY AMOUNT

5000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other.

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT.

HAZARDOUS COMPONENT (For mixture or waste only)

-EHS

CAS#

1

99 90%

PROPANE

☐ Yes ☒ No

74-98-6

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01113

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 17 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

☐ Yes ☒ No

EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional) 124 38-9

### II. CHEMICAL INFORMATION

CHEMICAL NAME

CARBON DIOXIDE REFRIGERATED LIQUID

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

CARBON DIOXIDE LIQUID

EHS\*

☐ Yes ☒ No

CAS #

124-38-9

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

13000

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

13000

MAXIMUM DAILY AMOUNT

13000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other.

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 CO2

☐ Yes ☒ No

2 ☐ Yes ☒ No

3 ☐ Yes ☒ No

4 ☐ Yes ☒ No

5 ☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01114

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 18 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL -  
EPCRA ☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) E7, (#5)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

PROPYLENE

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

PROPYLENE

EHS\* ☒ Yes ☐ No

CAS #

115-07-1

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

8700

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

8700

MAXIMUM DAILY  
AMOUNT

9000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☐ b ABOVE AMBIENT

☒ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	PROPYLENE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	115-07-1
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01115

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 19 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

E3 (#60)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ETHYLENE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ETHYLENE

EHS\*

☐ Yes ☒ No

CAS #

74-85-1

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

414

FED HAZARD CATEGORIES (Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY AMOUNT

3000

MAXIMUM DAILY AMOUNT

3000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON SITE

0

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 99 90%

ETHYLENE

☐ Yes ☒ No

74-85-1

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01116



# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 20 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) C2

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NEON

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NEON

EHS\*

☐ Yes ☒ No

CAS #

7440-01-9

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

261

ADDED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

5200

MAXIMUM DAILY  
AMOUNT

5200

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

0

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	NEON	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01117

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 21 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) D2 (#33)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

TRIFLUOROMETHANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

HALOCARBON 23

EHS\*

☐ Yes ☒ No

CAS #

75-46-7

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

385

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

7700

MAXIMUM DAILY  
AMOUNT

10000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	FLUOROFORM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	75-46-7
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01118

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 22 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL - ☐ Yes ☒ No  
EPCRA

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4 MAP# (optional)

GRID# (optional) D2 (#33)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

HEXAFLUOROETHANE

TRADE SECRET ☐ Yes ☒ No  
If Subject o EPCRA, refer to instructions

COMMON NAME

HALOCARBON 116

EHS\* ☐ Yes ☒ No

CAS #

76-16-4

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE ☐ MIXTURE ☐ WASTE

RADIOACTIVE ☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID ☐ LIQUID ☒ GAS

LARGEST CONTAINER  
266

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire ☐ Reactive ☒ Pressure Release ☐ Acute Health ☒ Chronic Health

AVERAGE DAILY  
AMOUNT

1200

MAXIMUM DAILY  
AMOUNT

1200

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS ☒ CUBIC FEET ☐ POUNDS ☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank ☐ Plastic/Nonmetallic Dru ☐ Fiber Drum ☐ Glass Bottle  
☐ Underground Tank ☐ Can ☐ Bag ☐ Plastic Bottle  
☐ Tank Inside Buildin ☐ Carboy ☐ Box ☐ Tote Bin  
☐ Steel Drum ☐ Silo ☒ Cylinder ☐ Tank Wagon

☐ Rail Car  
☐ Other

STORAGE PRESSURE

☐ a AMBIENT ☒ b ABOVE AMBIENT ☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT ☐ b ABOVE AMBIENT ☐ c BELOW AMBIENT ☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 99 90%

HEXAFLUOROETHANE

☐ Yes ☒ No

76-16-4

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01119

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 23 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

TETRAFLUOROMETHANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

HALOCARBON 14

EHS\*

☐ Yes ☒ No

CAS #

75-73-0

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

530

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

15800

MAXIMUM DAILY  
AMOUNT

15800

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

0

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 99 90%

TETRAFLUOROMETHANE

☐ Yes ☒ No

75-73-0

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01120

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 24 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERIC

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

E3 (#60)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ETHANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ETHANE

EHS\*

☒ Yes ☐ No

CAS #

74-84-0

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

435

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

850

MAXIMUM DAILY  
AMOUNT

850

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

	% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	99.90%	ETHANE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	74-84-0
2			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01121

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 25 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) D2 (#33)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

BROMOTRIFLUOROMETHANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

R13B1

EHS\*

☐ Yes ☒ No

CAS #

75-63-8

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

390

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☒ Acute Health

☒ Chronic Health

AVERAGE DAILY AMOUNT

780

MAXIMUM DAILY AMOUNT

1560

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99 90%	BROMOTRIFLUORMETHANE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	75-63-8
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01122

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 26 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) E3

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ISOBUTYLENE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ISOBUTYLENE

EHS\*

☐ Yes ☒ No

CAS #

115-11-7

If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

50

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

200

MAXIMUM DAILY  
AMOUNT

200

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 99 90%

ISOBUTYLENE

☒ Yes ☐ No

115-11-7

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01123

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 27 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 9 4

MAP# (optional) 1

GRID# (optional) E3

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ISOBUTANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ISOBUTANE

EHS\*

☒ Yes ☐ No

CAS #

75-28-5

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

70

FED HAZARD CATEGORIES

(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

210

MAXIMUM DAILY  
AMOUNT

210

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.90%	ISOBUTANE	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	75-28-5
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01124



# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 28 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) E3

### II. CHEMICAL INFORMATION

CHEMICAL NAME

BUTANE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

BUTANE

EHS\*

☒ Yes ☐ No

CAS #

106-97-8

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

FG

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

70

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

210

MAXIMUM DAILY  
AMOUNT

210

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT.

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1 99 90%

BUTANE

☒ Yes ☐ No

106-97-8

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01125

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 29 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) D3

### II. CHEMICAL INFORMATION

CHEMICAL NAME

XENON

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

XENON

EHS\*

☐ Yes ☒ No

CAS #

7440-63-3

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

230

ADDED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

3000

MAXIMUM DAILY  
AMOUNT

3000

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01126

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 30 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) D3

### II. CHEMICAL INFORMATION

CHEMICAL NAME

KRYPTON

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

KRYPTON

EHS\*

☐ Yes ☒ No

CAS #

7439-90-9

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

230

FED HAZARD CATEGORIES

(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

4000

MAXIMUM DAILY AMOUNT

4000

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container

(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1

2

3

4

5

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01127

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 31 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

F3 (#44)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

OILY WATER (WASTE)

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

OILY WATER (WASTE)

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

55

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

MAXIMUM DAILY  
AMOUNT

ANNUAL WASTE  
AMOUNT

700

STATE WASTE  
CODE

221

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01128

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 32 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) F3 (#44)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NEUTRALIZED CAUSTIC SOLUTION (WASTE)

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NEUTRALIZED CAUSTIC SOLUTION (WASTE)

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

55

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☒ Reactive

☐ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY AMOUNT

MAXIMUM DAILY AMOUNT

ANNUAL WASTE AMOUNT

200

STATE WASTE CODE

122

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01129

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 33 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) F3 (#44)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NEUTRALIZED CAUSTIC SOLUTION (WASTE)

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

WASTE CAUSTIC SOLUTION

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☒ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

55

MAXIMUM DAILY  
AMOUNT

55

ANNUAL WASTE  
AMOUNT

200

STATE WASTE  
CODE

122

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1

☐ Yes ☒ No

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01130

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 34 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) F3 (#44)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

OILY WATER (WASTE)

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions.

COMMON NAME

WASTE OILY WATER

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER

FED HAZARD CATEGORIES

(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY AMOUNT

55

MAXIMUM DAILY AMOUNT

55

ANNUAL WASTE AMOUNT

700

STATE WASTE CODE

221

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container

(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT

HAZARDOUS COMPONENT (For mixture or waste only)

EHS

CAS#

1

☐ Yes ☒ No

2

☐ Yes ☒ No

3

☐ Yes ☒ No

4

☐ Yes ☒ No

5

☐ Yes ☒ No

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01131

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 35 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE CORPORATION AMERICA

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional) 1

GRID# (optional) F3 (#44)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

WATER BASED PAINT (WASTE)

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

WASTE WATER BASED PAINT

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☐ MIXTURE

☒ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☒ LIQUID

☐ GAS

LARGEST CONTAINER  
55

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY  
AMOUNT

55

MAXIMUM DAILY  
AMOUNT

55

ANNUAL WASTE  
AMOUNT

600

STATE WASTE  
CODE

135

UNITS\*

(Check one item only)

☒ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☒ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01132



# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 36 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L P

CHEMICAL LOCATION

ESG CAGE

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

ARGON/HYDROGEN MIXTURE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

ARGON/HYDROGEN MIXTURE

EHS\*

☐ Yes ☒ No

CAS #

7440-37-1

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

200

FED HAZARD CATEGORIES  
(Check all that apply)

☒ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

2000

MAXIMUM DAILY  
AMOUNT

2000

ANNUAL WASTE  
AMOUNT

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

	% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	80 00%	HYDROGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-37-1
2	20 00%	ARGON	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1333-74-0
3			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01133

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 37 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L.P.

CHEMICAL LOCATION

ESG CAGE

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

HELIUM/NITROGEN MIXTURE

TRADE SECRET

☐ Yes ☒ No

If Subject to EPCRA, refer to instructions

COMMON NAME

HELIUM/NITROGEN MIXTURE

EHS\*

☐ Yes ☒ No

CAS #

7440-59-7

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

200

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

2000

MAXIMUM DAILY  
AMOUNT

2000

ANNUAL WASTE  
AMOUNT

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Drum

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other.

☐ Tank Inside Building

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 90.00%	NITROGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7727-37-9
2 100.00%	HELIUM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-59-7
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01134

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 38 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L.P

CHEMICAL LOCATION

ESG CAGE

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID#

1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

OXYGEN/HELIUM MIXTURE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

OXYGEN/HELIUM MIXTURE

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

235

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

2350

MAXIMUM DAILY  
AMOUNT

2350

ANNUAL WASTE  
AMOUNT

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 90.00%	HELIUM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-59-7
2 10.00%	OXYGEN	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7782-44-5
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01135

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 39 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L P

CHEMICAL LOCATION

ESG CAGE

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

XENON/HELIUM MIXTURE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

XENON/HELIUM MIXTURE

EHS\*

☐ Yes ☒ No

CAS #

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☐ PURE

☒ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER  
200

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

2000

MAXIMUM DAILY  
AMOUNT

2000

ANNUAL WASTE  
AMOUNT

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☒ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE 365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

	% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1	95.00%	HELIUM	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-59-7
2	5.00%	XENON	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7440-63-3
3			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01136

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 40 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L P

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROUS OXIDE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions.

COMMON NAME

NITROUS OXIDE

EHS\*

☐ Yes ☒ No

CAS #

10024-97-2

\*If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

Nonflammable Gas

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE

(Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

60

FED HAZARD CATEGORIES

(Check all that apply)

☐ Fire

☐ Reactive

☒ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

1200

MAXIMUM DAILY  
AMOUNT

1200

ANNUAL WASTE  
AMOUNT

0

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container

(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildin

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.99%	NITROUS OXIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10024-97-2
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01137

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 41 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L P.

CHEMICAL LOCATION

CHEMICAL LOCATION  
CONFIDENTIAL -  
EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

EHS\*

☐ Yes ☒ No

CAS #

If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

HAZARDOUS MATERIAL  
TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE  
(Check one item only)

☒ SOLID

☐ LIQUID

☐ GAS

LARGEST CONTAINER

FED HAZARD CATEGORIES  
(Check all that apply)

☐ Fire

☐ Reactive

☐ Pressure Release

☐ Acute Health

☐ Chronic Health

AVERAGE DAILY  
AMOUNT

MAXIMUM DAILY  
AMOUNT

ANNUAL WASTE  
AMOUNT

STATE WASTE  
CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☐ POUNDS

☐ TONS

DAYS ON  
SITE

365

Storage Container  
(Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☐ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01138

# Unified Program Consolidated Form

HAZARDOUS MATERIALS

## HAZARDOUS MATERIALS INVENTORY

- CHEMICAL DESCRIPTION

(one page per material per building or area)

Page 42 of 42

### I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)

AIR LIQUIDE AMERICA L.P.

CHEMICAL LOCATION

CHEMICAL LOCATION

CONFIDENTIAL -

EPCRA

☐ Yes ☒ No

FACILITY ID# 1 9 0 4 9 6 0 0 9 4

MAP# (optional)

GRID# (optional)

### II. CHEMICAL INFORMATION

CHEMICAL NAME

NITROGEN TRIFLOURIDE

TRADE SECRET

☐ Yes ☒ No

If Subject o EPCRA, refer to instructions

COMMON NAME

NITROGEN TRIFLOURIDE

EHS\*

☐ Yes ☒ No

CAS #

7783-54-2

\*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

Nonflammable gas

HAZARDOUS MATERIAL TYPE (Check one item only)

☒ PURE

☐ MIXTURE

☐ WASTE

RADIOACTIVE

☐ Yes ☒ No

CURIES

PHYSICAL STATE (Check one item only)

☐ SOLID

☐ LIQUID

☒ GAS

LARGEST CONTAINER

50

FED HAZARD CATEGORIES (Check all that apply)

☐ Fire

☒ Reactive

☒ Pressure Release

☐ Acute Health

☒ Chronic Health

AVERAGE DAILY AMOUNT

800

MAXIMUM DAILY AMOUNT

800

ANNUAL WASTE AMOUNT

0

STATE WASTE CODE

UNITS\*

(Check one item only)

☐ GALLONS

☐ CUBIC FEET

☒ POUNDS

☐ TONS

DAYS ON SITE

365

Storage Container (Check all that apply)

☐ Aboveground Tank

☐ Plastic/Nonmetallic Dru

☐ Fiber Drum

☐ Glass Bottle

☐ Rail Car

☐ Underground Tank

☐ Can

☐ Bag

☐ Plastic Bottle

☐ Other

☐ Tank Inside Buildn

☐ Carboy

☐ Box

☐ Tote Bin

☐ Steel Drum

☐ Silo

☒ Cylinder

☐ Tank Wagon

STORAGE PRESSURE

☒ a AMBIENT

☐ b ABOVE AMBIENT

☐ c BELOW AMBIENT

STORAGE TEMPERATURE

☐ a AMBIENT

☒ b ABOVE AMBIENT

☐ c BELOW AMBIENT

☐ d CRYOGENIC

% WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS#
1 99.99%	NITROGEN TRIFLOURIDE	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7783-54-2
2		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information

ADDITIONAL LOCALLY COLLECTED INFORMATION

If EPCRA, Please Sign Here

DICE 01139

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>800-868-4750</b>	4. Manifest Tracking Number <b>000569268 SKS</b>	
5 Generator's Name and Mailing Address <b>AIR LIQUIDE 05C 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>						
6 Generator's Site Address (if different than mailing address)						
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>				U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>				U.S. EPA ID Number <b>000618 TXD077603371</b>		
Facility's Phone <b>940-483-5200</b>						
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type	11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes
	X	1 WASTE AEROSOLS 2.1 UN1950 (ERG#126)	DM		P	DO01 331 OUTS 801H
	X	2 WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#126)	DM		P	DO01 DO05 DO06 DO07 DO08 OUTS 219H
		3 NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	DM		P	352 OUTS 8091
		4 NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)	DM		P	352 OUTS 8891
14 Special Handling Instructions and Additional Information <b>SK TRCK#108835626 0002215524</b>						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true						
Generator's/Offor's Printed/Typed Name <i>Alberto...</i> Signature <i>[Signature]</i> Month Day Year						
TRANSPORTER INT'L	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/ext. Date leaving U.S.					
	17 Transporter Acknowledgment of Receipt of Materials					
	Transporter 1 Printed/Typed Name Signature Month Day Year Transporter 2 Printed/Typed Name Signature Month Day Year					
DESIGNATED FACILITY	18 Discrepancy					
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	18b Alternate Facility (or Generator) Manifest Reference Number U.S. EPA ID Number					
	Facility's Phone <b>DICE 01140</b> Month Day Year					
18c Signature of Alternate Facility (or Generator) Month Day Year						
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Signature Month Day Year						



GENERATOR NAME. AIR LIQUIDE OSC

MANIFEST NO  
MANIFEST PAGE/LINE#

COU 569268FW

PURSUANT TO 40 CFR 268 7(A), I HEREBY NOTIFY THAT THIS SHIPMENT CONTAINS  
WASTE RESTRICTED UNDER 40 CFR PART 268 LAND DISPOSAL RESTRICTIONS (LDR).

## A GENERAL WASTE NOTIFICATION

EPA WASTE CODES & LDR SUBCATEGORIES (IF ANY)  
D001 LIQUID >= 10% TOC D005 D006 D007 D008 D035

TREATABILITY GROUP. NONWASTEWATERS

## WASTE CONSTITUENT NOTIFICATION

LEGEND  
NUMBER

CONSTITUENT

103	CYCLOHEXANONE
152	ETHYL ACETATE
154	ETHYL BENZENE
173	ISOBUTYL ALCOHOL
178	METHANOL
183	METHYLENE CHLORIDE
184	METHYL ETHYL KETONE
185	METHYL ISOBUTYL KETONE
217	PHthalic ANHYDRIDE
229	TETRACHLOROETHYLENE
231	TOLUENE
237	TRICHLOROETHYLENE
245	XYLENES-MIXED ISOMERS (SUM OF O-, m- AND P-XYLENE CONCENTRATIONS)
51	ACETONE
77	N-BUTYL ALCOHOL

GENERATOR'S AUTHORIZED  
SIGNATURENAME & TITLE  
(PRINTED OR TYPED)

DATE

9/13/07

S-K PROFILE REFERENCE NUMBER. 3435155

CONTROL NUMBER

2224730-4

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-458-1760</b>	4. Manifest Tracking Number <b>000164250 SKS</b>			
5 Generator's Name and Mailing Address <b>AIR LIQUIDE O5C 8632 DICE ROAD SANTA FE SPRINGS CA 90670</b>					Generator's Site Address (If different than mailing address)			
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>			
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>			
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					U.S. EPA ID Number <b>000618</b>			
Facility's Phone <b>940-483-5200</b>					<b>TXKD077603371</b>			
9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes		
		No.	Type					
X	<del>WASTE AEROSOLS 2.1 UN1950 (ERG#126)</del>		DM		P	DO01	331	OUTS 801H
X	<del>2.1 WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#128)</del>		DM		P	DO01	DO05	DO06
	<del>3 NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>		DM		P	NONE	352	OUTS 219H 4091
	<del>4 NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>		DM		P	NONE	352	OUTS 4091
14 Special Handling Instructions and Additional Information <b>SK TRCK#108659591 0002215524</b>								
<b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82730, 86256</b>								
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Officer's Printed/Typed Name <b>Amrita Macias</b>					Signature <i>Amrita Macias</i>		Month Day Year <b>10/2/97</b>	
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
17 Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name <b>John Charles</b>					Signature <i>John Charles</i>		Month Day Year <b>10/2/97</b>	
Transporter 2 Printed/Typed Name <b>John Charles</b>					Signature <i>John Charles</i>		Month Day Year <b>10/2/97</b>	
18 Discrepancy								
18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
18b Alternate Facility (or Generator)					Manifest Reference Number			
Facility's Phone					U.S. EPA ID Number			
18c Signature of Alternate Facility (or Generator)					Month Day Year			
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.		2.		3. <b>H141</b>		4. <b>DICE 01142</b>		
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 18a								
Printed/Typed Name <b>NATHAN ANDERSON</b>					Signature <i>Nathan Anderson</i>		Month Day Year <b>07/26/97</b>	

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-488-1780</b>	4. Manifest Tracking Number <b>000164250 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b> Generator's Phone <b>562-945-1383</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b> Facility's Phone: <b>940-463-5200</b>					U.S. EPA ID Number <b>000618 TXD077603371</b>		
GENERATOR	9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11. Total Quantity	12 Unit Wt./Vol	13. Waste Codes
	X	<del>WASTE AEROSOLS 2.1 UN1950 (ERG126)</del>		DM		P	D001 331 OUTS 301H
	X	<del>2.0 WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG128)</del>		DM		P	D001 D005 D006 D007 D008 OUTS 219H 3091
		<del>3.0W RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>	1	DM	200	P	NONE 352 OUTS 3091
		<del>4.0W RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>		DM		P	NONE 352 OUTS 3091
14 Special Handling Instructions and Additional Information <b>SK TRCK#108659591 0002215524</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name <i>John P. ...</i>				Signature <i>[Signature]</i>		Month Day Year <i>10/12/97</i>	
TRANSPORTER INTL	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/ext: _____ Date leaving U.S. _____				
	17 Transporter Acknowledgment of Receipt of Materials						
DESIGNATED FACILITY	Transporter 1 Printed/Typed Name <i>[Signature]</i>		Signature <i>[Signature]</i>		Month Day Year <i>10/12/97</i>		
	Transporter 2 Printed/Typed Name <i>[Signature]</i>		Signature <i>[Signature]</i>		Month Day Year <i>10/12/97</i>		
18 Discrepancy							
18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
18b Alternate Facility (or Generator)					U.S. EPA ID Number		
Facility's Phone							
18c. Signature of Alternate Facility (or Generator)					Month Day Year		
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
						<b>DICE 01143</b>	
20 Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name				Signature		Month Day Year	



5400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024  
CUSTOMER NO.

800-669-5740  
www.safety-kleen.com



DUNS NO 05-397-8551

FED ID NO 39690019

CUSTOMER

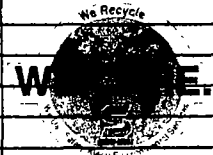
FOR SERVICE CALL	BRANCH MANAGER	DOC EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REP. REFERENCE NUMBER
626-575-4685	GABRIEL MEDEL		07		M004288877
			CREDIT CODE	PREVIOUS BALANCE	BAL. OVER 60 DAYS
			CUSTOMER SEGMENT	CHAIN	OUTER COUNTRY
			LOCATION	TAX EXEMPTION NO	
			708806		

CUSTOMER

2-2155-29  
Air Liquide OSC  
8832 Dr. Rd  
Santa Fe Spring CA 90670

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	DATE EQPT/PROD ORDERED	SERVICE TAX	C.O.M.S TAX	PRODUCT TAX
2/27/07	0322			PW				

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM	CHANGE SCH DATE	INV CODE	PROMO NO	MSD
									CLEAN SPENT # OF CONT SK DOT			(OVERS) INITIAL	(Y WW)			
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																



DICE 01144

TOTAL-SERVICE/PRODUCTS

USEPA TRANSPORTER 1 ID NO. USEPA TRANSPORTER 2 ID NO. GENERATOR USEPA ID NO. GENERATOR STATE ID NO.

TXR000050930

CA000027160

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)

HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III  
(D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)  
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS IMMERSION CLEANER)  
NON-RCRA HAZARDOUS WASTE, LIQUID  
(AQUEOUS PARTS WASHER SOLUTION)

CHECK APPROPRIATE BOXES	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
MACHINE CONDITION & CLEANLINESS	<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO. STICKER AFFIXED TO MACHINE	<input type="checkbox"/>	<input type="checkbox"/>
LAMP ASSEMBLY CONDITION	<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>

12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	5163055
			839	
			14311	
			14941	

I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES  
0 TO 220 LBS /MONTH  
220 LBS TO 2,200 LBS /MONTH  
GREATER THAN 2,200 LBS /MONTH

DESIGNATED FACILITY NAME AND ADDRESS SAFETY-KLEEN SYSTEMS, INC.

I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS  
USA EPA ID NO.  
STATE ID NO.

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE # AMOUNT \$
PREVIOUS CREDIT CARD NO		
CUSTOMER REFERENCE		

MANIFEST NO.	000168200
LDR MESSAGE	
MANIFEST CODE	SEQ #
	8 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS  
"This is to certify that the above-named materials are properly classified, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation"

Print Customer Name Andra Macias  
By Andra Macias  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	392.28

DO NOT WRITE IN THE AREA BELOW

M004288877  
000333

SERVICE AND SALES ACKNOWLEDGMENT

1-UBB-100

Form Approved OMB No 2050-001

Please print or type. (Form designed for use on 12-pitch typewriter.)

1. Uniform Hazardous Waste Manifest		2. Generator ID Number CAL000021160		3. Page 1 of 3 Emergency Response Phone 1-800-468-1760		4. Manifest Tracking Number 000201911 SKS	
5. Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone: 562-945-1381 CA 90670							
6. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC.						U.S. EPA ID Number TXR000050930	
7. Transporter 2 Company Name						U.S. EPA ID Number	
8. Designated Facility Name and Site Address DEMENNO / KERDOON 2000 NORTH ALAMEDA STREET COMPTON CA 90222 Facility's Phone: 310-537-7100						U.S. EPA ID Number CAT080013352	
GENERATOR	9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		HOM RCRA HAZARDOUS WASTE, LIQUID (OIL, WATER)	1 / TT		220	G	NONE 222
	2	THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE					
	3	DEMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED. OUR EPA NUMBER IS CAT080013352.					
14. Special Handling Instructions and Additional Information SR TRCK#J08407667 0002215524 PO# 750199551							
15. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national government regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:		Month Day Year 4 27 07		
	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: David Connolly Signature: David Connolly		Signature: David Connolly		Month Day Year 4 27 07		
DESIGNATED FACILITY	18. Discrepancy		18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue		<input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection		
	18b. Alternate Facility (or Generator)		Manifest Reference Number		U.S. EPA ID Number		
	Facility's Phone:						
	18c. Signature of Alternate Facility (or Generator)				Month Day Year		
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. H135		2.		3.		4. DICE 01145	
20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18e Printed/Typed Name: [Signature] Signature: [Signature] Month Day Year: 12 10 11							



5400 Legacy Drive, Cluster II, B3 800-669-5740  
 Fano, Texas 75024 www.safety-kleen.com  
 CUSTOMER NO



DUNS NO. 05-397-6551 FED ID NO 75-2178928

CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
	BRIAN CASTANEDA	DOC EXP 06/23/07	07-17	30	0034073221
			CREDIT CODE	PREVIOUS BALANCE	BAL OVER 60 DAYS
			F	1240 23	
BUSINESS TYPE	CHAIN	OUTER COUNTY	SVC P/C	PROD P/C	
09	1091	NO	713	226	
LOCATION			TAX EXEMPTION NUMBER		

0002-2155-24 -6  
 AIR LIQUIDE O5C  
 8832 DICE ROAD  
 SANTA FE SPRINGS CA 90670

B  
I  
L  
L

SERVICE DATE		SALES REP NO	CUSTOMER P.O. NUMBER			CUSTOMER PHONE #		TAX CODE		HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S TAX		PRODUCT TAX			
4/27/07		432039	906-8700			562-945-1383		05-095-8001							0825			
DEPT	SERVICE/PRODUCT	SURVEY NUMBER	UNIT PRICE	QUANTITY	CHARGE	SALES TAX	TOTAL CHARGE	CHLORINE TEST RESULTS				SK DOT NUMBER	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)(INITIAL)	CHANGE SCH DATE (YY WW)	PROMO NO	RELEASE NO.
								HALOGEN TESTER PASS	FAIL	CHLOR-D-TECT RESULTS (PPM)	TESTERS INITIALS							
001	100009			1	10.85	0.00	10.85	<input type="checkbox"/>	<input type="checkbox"/>					0				
006	66666	00435279	<del>10.85</del>					<input type="checkbox"/>	<input type="checkbox"/>				52					
006	66676	00435279	<del>3.0500</del>					<input type="checkbox"/>	<input type="checkbox"/>				52					
	10971		1.70 per gal	220	374.00		374.00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6	CK 38139							
	10902		150.00	1	150.00		150.00	<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									

TOTAL-SERVICE/PRODUCTS

534.85 TANK CAPACITY

TRANSPORTER

DATE 4/27/07

GENERATOR STATUS: CHECK ONLY ONE BOX BELOW

GENERATOR HAZARDOUS WASTE CLASSIFICATION *	VEHICLE FLUIDS ONLY <input type="checkbox"/> 1	OTHER NON-VEHICLE FLUIDS <input type="checkbox"/> 3	1 NO PREQUAL REQUIRED, NO HALOGEN TEST 2 NO PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP 3 PREQUAL REQUIRED, NO HALOGEN TEST 4 PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP * REFER TO REVERSE SIDE FOR DEFINITIONS
CESQG	<input type="checkbox"/> 1	<input type="checkbox"/> 3	
SOGLQG	<input type="checkbox"/> 2	<input type="checkbox"/> 4	

00201911 SKS

TXR000050930

CAL000021160

PRINT NAME	SIGNATURE
DATE	
PRINT NAME	SIGNATURE

11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)

Non-RCRA Hazardous Waste Liquid (oil water)

12 CONTAINERS NO.	13. TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
01 TT	220	G	38139



INTERMEDIATE FACILITY NAME AND ADDRESS  
 2000 N. ALAMEDA Compton CA 90222

USA EPA ID NO. CAT080013352  
 STATE ID NO. CAT080013352

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO.
CHECK NUMBER		TODAY'S SERVICE/SALE PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE #
		AMOUNT \$
PREVIOUS CREDIT CARD NO		
CREDIT CARD NO		EXP. DATE

MANIFEST CODE	SEQ #
US	1 D

CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION

Customer certifies that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Environmental Protection Agency and the U.S. Department of Transportation

ADDITIONAL TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS DOCUMENT ARE INCORPORATED HERewith MADE A PART HEREOF.

Print Name: DAVID CONNOLLY

Signature: David Connolly

GENERATOR/SHIPPER DESIGNATED REPRESENTATIVE SIGNATURE

TOTAL DUE	534.85
DO NOT WRITE IN THE AREA BELOW	
0034073221	
0002-2155-24 -6	

DICE 01146

OIL RECOVERY SERVICE/  
SALES ACKNOWLEDGMENT

PART NO 1303 (5/04)

7-088-Q6

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4 Manifest Tracking Number <b>000201911 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b> Generator's Phone: <b>562-945-1383</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name					U.S. EPA ID Number		
8 Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALAMEDA STREET COMPTON CA 90222</b> Facility's Phone: <b>310-537-7100</b>					U.S. EPA ID Number <b>CAT080013352</b>		
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No	Type	11 Total Quantity	12 Unit WL/Vol	13 Waste Codes
		<b>NON RCRA HAZARDOUS WASTE, LIQUID (OIL, WATER)</b>	<b>1</b>	<b>TT</b>	<b>220</b>	<b>G</b>	<b>NONE 222</b>
14 Special Handling Instructions and Additional Information <b>SK TRCK#108407667 0002215524</b>							
<b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</b> 15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name: <b>David C. ...</b> Signature: <b>[Signature]</b> Month: <b>4</b> Day: <b>27</b> Year: <b>97</b>							
INTL	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
	17 Transporter Acknowledgment of Receipt of Materials						
TRANSPORTER	Transporter 1 Printed/Typed Name: <b>David Revivich</b>				Signature: <b>[Signature]</b>		Month: <b>4</b> Day: <b>27</b> Year: <b>97</b>
	Transporter 2 Printed/Typed Name:				Signature:		Month: Day: Year:
DESIGNATED FACILITY	18 Discrepancy						
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	Manifest Reference Number:						
	18b Alternate Facility (or Generator) U.S. EPA ID Number:						
	Facility's Phone:						
	18c Signature of Alternate Facility (or Generator):						Month: Day: Year:
	19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
	1	2	3	4			
	<b>DICE 01147</b>						
	20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
	Printed/Typed Name:				Signature:		Month: Day: Year:

# Certificate of Treatment/Recycling

ISSUED TO

AIR LIQUIDE OSC

FOR

MANIFEST NUMBER 000201911315 DATE RECEIVED 5-1-2007

The aqueous waste received on the above manifest will be treated to standards mandated by the FEDERAL CLEAN WATER ACT and to effluent requirements established by the Sanitation Districts of Los Angeles County. Waste treatment and recycling is performed under permits granted to DeMENNO/KERDOON, a California Corporation, by the California Department of Toxic Control (DTSC), in coordination with the Environmental Protection Agency, in accordance with the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, together with applicable federal and state regulations including but not limited to waste discharge requirements established by the Sanitation Districts of Los Angeles County.

When the above described waste material is accepted by DeMENNO/KERDOON and treated/recycled and the aqueous phase discharged for further treatment by the Sanitation Districts, the certificate holder's responsibility for the waste material is eliminated under both RCRA and Proposition 65. Upon request, DeMENNO/KERDOON will issue this certificate that all waste material has been handled in accordance with applicable permits and the certificate holder's liability has been terminated

DeMENNO/KERDOON

"Compliance Through Recycling"

By:

Cyrus Pourmassarian  
Laboratory Manager

Date:

7.18.2007

2000 North Alameda Street ☐ Compton ☐ California ☐ 90222  
Telephone (310) 537-7100 ☐ Facsimile (310) 639-2946



<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of <b>1</b>	3 Emergency Response Phone <b>1-800-458-1760</b>	4. Manifest Tracking Number <b>000569753 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE O5C 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone 562-945-1383</b>							
Generator's Site Address (if different than mailing address) <b>CA 90670</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7. Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					U.S. EPA ID Number <b>000618</b>		
Facility's Phone <b>940-483-5200</b>					<b>TXD077603371</b>		

9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes		
		No	Type					
X	<del>WASTE AEROSOLS 2.1 UN1950 (P01)</del>		DM		P	D001	331	OUTS 801H
X	<del>WASTE PAINT RELATED MATERIAL 3-UN1269 PG III (D001) (P01)</del>		DM		P	D001	D005	D006
	<del>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>		DM		P	D007	D008	OUTS 219H
	<del>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>		DM		P	352	OUTS 4091	
		2		250				
		1		180		352	OUTS 4891	

14 Special Handling Instructions and Additional Information  
**① ERG #125 ② ERG #128 SK TRCK#108688417 0002215524**

15 GENERATOR'S OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Officer's Printed/Typed Name: **[Signature]** Signature: **[Signature]** Month: **08** Day: **13** Year: **07**

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: **[Signature]** Date leaving U.S.: **[Signature]**

17. Transporter Acknowledgment of Receipt of Materials  
 Transporter 1 Printed/Typed Name: **[Signature]** Signature: **[Signature]** Month: **08** Day: **13** Year: **07**  
 Transporter 2 Printed/Typed Name: **[Signature]** Signature: **[Signature]** Month: **08** Day: **13** Year: **07**

18 Discrepancy  
 18a Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection  
 Manifest Reference Number: **DICE 01149**

18b Alternate Facility (or Generator) U.S. EPA ID Number: **DICE 01149**  
 Facility's Phone: **[Signature]**

18c Signature of Alternate Facility (or Generator) Month: **08** Day: **13** Year: **07**

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)  
 1. **H141** 2. **H141** 3. **H141** 4. **H141**

20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a  
 Printed/Typed Name: **[Signature]** Signature: **[Signature]** Month: **08** Day: **13** Year: **07**

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL 0000 21160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1800 483-3718</b>	4 Manifest Tracking Number <b>000633226 FLE</b>	
5 Generator's Name and Mailing Address <b>Air Logistics Attn: Mr. H. H. H. San Francisco, CA 94102</b>			Generator's Site Address (if different than mailing address)			
6 Transporter 1 Company Name <b>Clean Harbor Environmental Services</b>			U.S. EPA ID Number			
7 Transporter 2 Company Name			U.S. EPA ID Number			
8 Designated Facility Name and Site Address <b>Industrial Waste Processing 1000 S. Bascom Ave. San Jose, CA 95128</b>			U.S. EPA ID Number			
Facility's Phone <b>408 951-1000</b>						
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No. Type	11 Total Quantity	12 Unit Wt./Vol.	13 Waste Codes
		1 <b>HAZARDOUS WASTE SOLIDS, POISON</b>	1 CM	15	Y	
		2				
		3				
		4				
14 Special Handling Instructions and Additional Information						
15 <b>GENERATOR'S/OFFEROR'S CERTIFICATION</b> I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name <b>Rafael L. Motta</b> Signature <i>Rafael L. Motta</i> Month <b>10</b> Day <b>7</b> Year <b>2007</b>						
INT'L	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit _____ Date leaving U.S. _____					
	17 Transporter Acknowledgment of Receipt of Materials					
TRANSPORTER	Transporter 1 Printed/Typed Name <b>ENRIQUE HERNANDEZ</b> Signature <i>Enrique Hernandez</i> Month <b>07</b> Day <b>15</b> Year <b>2007</b>					
	Transporter 2 Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____					
DESIGNATED FACILITY	18 Discrepancy					
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	18b Alternate Facility (or Generator) Manifest Reference Number _____ U.S. EPA ID Number _____					
	Facility's Phone _____					
	18c Signature of Alternate Facility (or Generator) _____ Month _____ Day _____ Year _____					
	19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
	1 <b>11132</b>	2	3	4		
	20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a					
	Printed/Typed Name <b>J. B. DICE</b> Signature <i>J. B. DICE</i> Month <b>12</b> Day <b>25</b> Year <b>2007</b>					

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number	2 Page 1 of	3 Emergency Response Phone	4. Manifest Tracking Number <b>000633226 FLE</b>		
5 Generator's Name and Mailing Address				Generator's Site Address (if different than mailing address)			
Generator's Phone							
6 Transporter 1 Company Name				U.S. EPA ID Number			
7 Transporter 2 Company Name				U.S. EPA ID Number			
8 Designated Facility Name and Site Address				U.S. EPA ID Number			
Facility's Phone							
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes
			No	Type			
	1		1	CM	15	Y	
	2						
	3						
	4						
14 Special Handling Instructions and Additional Information							
15 <b>GENERATOR'S/OFFEROR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name		Signature		Month Day Year			
16 International Shipments		<input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit			
Transporter signature (for exports only)				Date leaving U.S.			
TRANSPORTER	17 Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name		Signature		Month Day Year		
	Transporter 2 Printed/Typed Name		Signature		Month Day Year		
DESIGNATED FACILITY	18 Discrepancy						
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	Manifest Reference Number				U.S. EPA ID Number		
	18b Alternate Facility (or Generator)						
	Facility's Phone						
18c Signature of Alternate Facility (or Generator)				Month Day Year			
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
20 Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name		Signature		Month Day Year			

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4 Manifest Tracking Number <b>000201493 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone 562-945-1383</b>					Generator's Site Address (if different than mailing address) <b>CA 90670</b>		
6. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>Triad Transportation Inc</b>					U.S. EPA ID Number <b>OKN 981587791</b>		
8 Designated Facility Name and Site Address <b>US ECOLOGY NEVADA 11 MILES S. HWY 95 BEATTY 775-553-2203</b>					U.S. EPA ID Number <b>050505 NV 89003 NVT330010000</b>		
Facility's Phone							
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11 Total Quantity	12 Unit WL/Vol	13 Waste Codes
	X	WASTE CORROSIVE LIQUID, BASIC, INORGANIC N.O.S. (POTASSIUM HYDROXIDE, LEAD) 8 UN3266 II (ERG#154)	1	DM	20	P	D008 D002 181
	2						
	3						
	4						
14 Special Handling Instructions and Additional Information <b>SK TRCK#108500735 0002215524</b> <b>AWK# 07014-0003-119</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name <b>Tom Corrin</b> Signature <b>Tom Corrin</b> Month Day Year <b>06/05/07</b>							
TRANSPORTER	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit Transporter signature (for exports only) Date leaving U.S.						
	17 Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <b>Joe Martin</b> Signature <b>Joe Martin</b> Month Day Year <b>06/05/07</b>						
	Transporter 2 Printed/Typed Name <b>Joe Martin</b> Signature <b>Joe Martin</b> Month Day Year <b>06/11/07</b>						
DESIGNATED FACILITY	18 Discrepancy 18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number						
	18b Alternate Facility (or Generator) U.S. EPA ID Number						
	Facility's Phone						
	18c Signature of Alternate Facility (or Generator) Month Day Year						
	19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1 <b>H32</b> 2 3 4 <b>DICE 01152</b>						
20 Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name <b>Mike Brook</b> Signature <b>Mike Brook</b> Month Day Year <b>10/01/07</b>							

7-088-06

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000201493 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b> Generator's Phone <b>562-945-1383</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>			
7 Transporter 2 Company Name				U.S. EPA ID Number			
8 Designated Facility Name and Site Address <b>US ECOLOGY NEVADA 11 MILES S. HWY 95 BEATTY NV 89003</b> Facility's Phone <b>775-553-2203</b>				U.S. EPA ID Number <b>NVT330010000</b>			
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No	Type	11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes
	X	<b>WASTE CORROSIVE LIQUID, BASIC, INORGANIC N.O.S. (POTASSIUM HYDROXIDE, LEAD) 8 UN3266 II (ERG#154)</b>	1	DM	2	P	<b>D008 D002 161</b>
14 Special Handling Instructions and Additional Information <b>SK TRCK#108500735</b> <b>0002215524</b>							
<b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name				Signature		Month Day Year	
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.							
17 Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name				Signature		Month Day Year	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
18 Discrepancy							
18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number							
18b Alternate Facility (or Generator)				U.S. EPA ID Number			
Facility's Phone							
18c Signature of Alternate Facility (or Generator)						Month Day Year	
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
						<b>DICE 01153</b>	
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name				Signature		Month Day Year	



3700 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-669-5740  
www.safety-kleen.com



DUNS NO 05-397-8551

FED ID NO 396090019

CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	GABRIEL MEDEL	07/21/07	07-21	23	0034257091

CREDIT CODE E	PREVIOUS BALANCE 2548.06	BAL OVER 60 DAYS
BUSINESS TYPE 09	CHAIN 1091	OUTER COUNTY NO
SVC P/C 2288	PROD P/C 2226	
LOCATION 708806	TAX EXEMPTION NO	

Add Rep  
433431

AIR LIQUIDE 050

8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

SERVICE DATE	SALES REP NO	CUSTOMER P O NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C O M S TAX	PRODUCT TAX
6-5-07	0333		562-945-1383	05-095-8001	PW		.0825		.0825

DEPT	SERVICE/PRODUCT	SURVEY NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)	CHANGE SGT DATE (YY MM)	INV CODE	PROMO NO	RELEASE NO.	MSDS GIVEN
1	00100009			1	10.85	0.00	10.85	0.00			0						
2	0088888	40196430	375.0000		119.00	-	119.00				52						
3			5 GA														
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

TOTAL-SERVICE/PRODUCTS

USEPA TRANSPORTER 1 ID NO TXR000050930	USEPA TRANSPORTER 2 ID NO	GENERATOR USEPA ID NO CAL000021160	GENERATOR STATE ID NO
---	---------------------------	---------------------------------------	-----------------------

11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)

CHECK APPROPRIATE BOXES	MACHINE CONDITION & CLEANLINESS	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
	LAMP ASSEMBLY CONDITION			FUSIBLE LINK INSTALLED			LOCAL PHONE NO STICKER AFFIXED TO MACHINE		
				EMERGENCY CLOSING OF LID UNOBSTRUCTED			SPENT SOLVENT MEETS ACCEPTANCE CRITERIA		

12 CONTAINERS NO 13 TOTAL QUANTITY 14 UNIT WT/VOL SK DOT NUMBER 5163055

CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES

0 TO 220 LBS/MONTH

INITIALS

220 LBS TO 2,200 LBS/MONTH

INITIALS

GREATER THAN 2,200 LBS/MONTH

INITIALS

DESIGNATED FACILITY NAME AND ADDRESS

I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS

USA EPA ID NO  
STATE ID NO

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE # AMOUNT \$
PREVIOUS CREDIT CARD NO		
CREDIT CARD NO		
CUSTOMER REFERENCE INFORMATION		

MANIFEST NO. 00021493	
LDR MESSAGE LDR NOT REQ'D	
MANIFEST CODE	SEQ # 1 D

IN THE EVENT OF AN  
EMERGENCY CALL  
1-800-168-1740

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

This is to certify that the above-named materials are properly classified, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Print Customer Name  
By Troy Corbett  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	119

DO NOT WRITE IN THE AREA BELOW

0034257091  
0002-2155-24 -G

SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev 05/04)

7-068-06

Please print or type form signed for use on elite (12-pitch) typewriter)

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000164559 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 Generator's Phone 562-945-1383</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208 Facility's Phone: 940-483-5200</b>					U.S. EPA ID Number <b>000618 TXD077603371</b>		
9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes	
X	<del>WASTE-AEROSOLS 2.1 UN1950 (ERG#126)</del>				P	D001	331 OUTS 801H
X	<del>NO WASTE PAINT RELATED MATERIAL 3-UN1263 PG III (D001) (ERG#126)</del>				P	D001	D005 D006
	<del>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>	1		180	P	NONE	352 OUTS 219H 4091
	<del>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>				P	NONE	352 OUTS 4091
14 Special Handling Instructions and Additional Information <b>SK TRCK#108520844 0002215524</b>							
15 <b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b>							
15 <b>GENERATOR'S/OFFEROR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name <i>Troy Corrie</i>		Signature <i>Troy Corrie</i>			Month Day Year <i>06/05/07</i>		
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.					
17 Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <i>Dose</i>		Signature <i>[Signature]</i>			Month Day Year <i>06/05/07</i>		
Transporter 2 Printed/Typed Name <i>H. Williams</i>		Signature <i>[Signature]</i>			Month Day Year <i>06/05/07</i>		
18 Discrepancy							
18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number							
18b Alternate Facility (or Generator) U.S. EPA ID Number							
Facility's Phone							
18c Signature of Alternate Facility (or Generator) Month Day Year							
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1	2	3	4	DICE 01155			
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a							
Printed/Typed Name <i>Chalon Strong</i>		Signature <i>[Signature]</i>			Month Day Year <i>06/11/07</i>		

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

1) 00820332 2) 0163141 3) 0187698 4) 0187688

1) 2223148/3435148 2) 2224730/3435155 3) 200623/2081761 4) 9021437/2113626

DESIGNATED FACILITY TO GENERATOR

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>		2 Page 1 of <b>1</b>		3. Emergency Response Phone <b>1-800-468-1760</b>		4. Manifest Tracking Number <b>000164559 SKS</b>									
		5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b> Generator's Phone <b>562-945-1383</b>						Generator's Site Address (if different than mailing address)									
<b>GENERATOR</b>		6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>						U.S. EPA ID Number <b>TXR000050930</b>									
		7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>						U.S. EPA ID Number <b>OKD981588791</b>									
<b>DESIGNATED FACILITY</b>		8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b> Facility's Phone <b>940-483-5200</b>						U.S. EPA ID Number <b>TXD077603371</b>									
		9a HM <b>X</b>						9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) <b>WASTE AEROSOLS 2.1 UN1950 (ERG#126)</b>		10 Containers No Type <b>DM</b>		11 Total Quantity <b>P</b>		12 Unit Wt./Vol <b>DO01 331</b>		13 Waste Codes <b>OUTS 501H</b>	
<b>TRANSPORTER</b>		9a HM <b>X</b>						9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) <b>NO WASTE PAINT RELATED MATERIAL 3 UN1263 PG-III (DO01) (ERG#128)</b>		10 Containers No Type <b>DM</b>		11 Total Quantity <b>P</b>		12 Unit Wt./Vol <b>DO01 DO05 DO06</b>		13 Waste Codes <b>DO07 DO08 OUTS 219H</b>	
		9a HM <b>X</b>						9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) <b>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</b>		10 Containers No Type <b>DM</b>		11 Total Quantity <b>P</b>		12 Unit Wt./Vol <b>NONE 352</b>		13 Waste Codes <b>OUTS 4091</b>	
<b>DESIGNATED FACILITY</b>		9a HM <b>X</b>						9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) <b>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</b>		10 Containers No Type <b>DM</b>		11 Total Quantity <b>P</b>		12 Unit Wt./Vol <b>NONE 352</b>		13 Waste Codes <b>OUTS 4091</b>	
		14 Special Handling Instructions and Additional Information <b>SK TRCK#108520944 0002215524</b> <b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b>						15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
<b>TRANSPORTER</b>		Generator's/Officer's Printed/Typed Name <i>[Signature]</i>						Signature <i>[Signature]</i>				Month Day Year <i>[Signature]</i>					
		16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit Date leaving U.S.															
<b>TRANSPORTER</b>		17 Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <i>[Signature]</i> Signature <i>[Signature]</i> Month Day Year <i>[Signature]</i>															
		Transporter 2 Printed/Typed Name <i>[Signature]</i> Signature <i>[Signature]</i> Month Day Year <i>[Signature]</i>															
<b>DESIGNATED FACILITY</b>		18 Discrepancy 18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number															
		18b Alternate Facility (or Generator) Facility's Phone						U.S. EPA ID Number									
<b>DESIGNATED FACILITY</b>		18c Signature of Alternate Facility (or Generator)						Month Day Year									
		19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)															
<b>DESIGNATED FACILITY</b>		1		2		3		4		<b>DICE 01156</b>							
		20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a Printed/Typed Name Signature Month Day Year															



Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000201935 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone 562-945-1383</b>			Generator's Site Address (if different than mailing address) <b>CA 90670</b>				
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>			U.S. EPA ID Number <b>TXR000050930</b>				
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>			U.S. EPA ID Number <b>OKD981588791</b>				
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>			U.S. EPA ID Number <b>000618</b> <b>TXD077603371</b>				
Facility's Phone <b>940-483-5200</b>							
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No	Type	11. Total Quantity	12 Unit Wt./Vol	13 Waste Codes
	X	WASTE AEROSOLS 2.1 UN1950 (ERG#126)	1	DM	150	P	DO01 331 OUTS 801H
	X	RO WASTE PAINT RELATED MATERIAL 3-UN1263 PG III (DO01) (ERG#128)		DM		P	DO01 DO05 DO06 DO07 DO08 OUTS 219H
		NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	1	DM	240	P	NONE 352 OUTS 4091
		NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P	NONE 352 OUTS 4091
14 Special Handling Instructions and Additional Information <b>SK TRCK#108414105 0002215524</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name <b>Anta Macias</b>		Signature <i>Anta Macias</i>		Month Day Year <b>10/11/07</b>			
TRANSPORTER INTL	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit _____ Date leaving U.S. _____						
	17. Transporter Acknowledgment of Receipt of Materials						
TRANSPORTER	Transporter 1 Printed/Typed Name <b>Jose Man</b>		Signature <i>Jose Man</i>		Month Day Year <b>10/11/07</b>		
	Transporter 2 Printed/Typed Name <b>Paul Gred</b>		Signature <i>Paul Gred</i>		Month Day Year <b>10/11/07</b>		
DESIGNATED FACILITY	18 Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	Manifest Reference Number						
	18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone							
18c. Signature of Alternate Facility (or Generator) Month Day Year							
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1 <b>1141</b>		2		3 <b>1141</b>		4 <b>DICE 01157</b>	
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name <b>Beck Fort</b>		Signature <i>Beck Fort</i>		Month Day Year <b>10/11/07</b>			

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of <b>1</b>	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000201935 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8812 DICE ROAD SANTA FE SPRINGS CA 90670</b>				Generator's Site Address (if different than mailing address)			
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>			
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>				U.S. EPA ID Number <b>OKD981588791</b>			
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>				U.S. EPA ID Number <b>TXD077603371</b>			
Facility's Phone <b>940-483-5200</b>							
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No. Type		11 Total Quantity	12. Unit Wt/Vol	13 Waste Codes
	X	WASTE AEROSOLS 2.1 UN1950 (ERG#126)	DM			P	DO01 331 OUTS 601H
	X	NO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#126)	DM			P	DO01-DO05-DO06 DO07 DO08 OUTS 219H 1091
		NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	DM			P	NONE 352 OUTS 1091
		NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)	DM			P	NONE 352 OUTS 1091
14 Special Handling Instructions and Additional Information <b>SK TRCK#108414185 0002215524</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name				Signature		Month Day Year	
TRANSPORTER	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit _____ Date leaving U.S. _____						
	17 Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name				Signature		Month Day Year	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
DESIGNATED FACILITY	18 Discrepancy						
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	Manifest Reference Number						
	18b Alternate Facility (or Generator) U.S. EPA ID Number						
	Facility's Phone						
18c Signature of Alternate Facility (or Generator)						Month Day Year	
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
						<b>DICE 01158</b>	
20 Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a							
Printed/Typed Name				Signature		Month Day Year	



Plano, Texas 75024

www.safety-kleen.com



UNIFORM NO. 05-39/0051

FED ID NO. 396080019

CUSTOMER

CUSTOMER NO.

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	BRIAN CASTANEDA		07		M004147028
			CREDIT CODE	PREVIOUS BALANCE	BAL. OVER 60 DAYS
			BUSINESS TYPE	CHAIN	OUTER COUNTY
			SVC P/C	PROD P/C	
			LOCATION	TAX EXEMPTION NO	
			708806		

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
5-11-07	10333					PW			

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIFORM PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)	CHANGE SCH DATE (YY WW)	INV CODE	PROMO NO	MSDS GIVEN
									CLEAN SPENT # OF CONT SK DOT							
	7888	343514	875121	1	289	-	289									
	7888	2081701	895086	1	316	-	316									
	803269	Empty	5	1	65	53	118									
	7888	Empty	30	1	50	93	59									
	110049			1	10	-	10									

DICE 01159



TOTAL-SERVICE/PRODUCTS	731 <sup>10</sup>	9 <sup>51</sup>	1740	64
TXR000050930	CAH 00021160			

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)	12 CONTAINERS NO	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	516305
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)				839	
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS IMMERSION CLEANER)				14311	
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS PARTS WASHER SOLUTION)				14941	

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS	USA EPA ID NO.	STATE ID NO.
--------------------------------------	----------------------------	--	----------------	--------------

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE #
AMOUNT \$		
PREVIOUS CASH		

MANIFEST NO.	000201935
LDR MESSAGE	
MANIFEST CODE	SEQ #
	2 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT. PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION. THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS.
Print Customer Name
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	4740
DO NOT WRITE IN THE AREA BELOW	

M004147028  
000333SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev 05/04)

7-088-306

3

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>		2 Page 1 of	3 Emergency Response Phone <b>1-800-468-1760</b>		4. Manifest Tracking Number <b>000201911 SKS</b>			
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone 562-945-1383</b>					Generator's Site Address (if different than mailing address) <b>CA 90670</b>					
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U S EPA ID Number <b>TXR000050930</b>					
7 Transporter 2 Company Name					U S EPA ID Number					
8 Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALAMEDA STREET COMPTON Facility's Phone 310-537-7100</b>					U S EPA ID Number <b>050122 CA 90222 CAT080013352</b>					
GENERATOR	9a HM	9b U S DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No Type		11. Total Quantity	12. Unit WL/Vol	13. Waste Codes			
	1	<b>NON RCRA HAZARDOUS WASTE, LIQUID (OIL, WATER)</b>	<b>1</b>	<b>TT</b>	<b>220</b>	<b>G</b>	<b>NONE</b>	<b>222</b>		
	2	<b>THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE DEMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED. OUR EPA NUMBER IS CAT080013352</b>								
	3									
	4									
14. Special Handling Instructions and Additional Information <b>SK TRCK#108407667 0002215524</b> <b>PO# 750199551</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</b>										
15. GENERATOR'S OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.										
Generator's/Offor's Printed/Typed Name <b>DAVID CONNOLLY</b>					Signature <i>David Connolly</i>		Month Day Year <b>4 27 97</b>			
TRANSPORTER INTL	16 International Shipments <input type="checkbox"/> Import to U S <input type="checkbox"/> Export from U S		Port of entry/exit. Date leaving U S							
	Transporter signature (for exports only)									
TRANSPORTER	17 Transporter Acknowledgment of Receipt of Materials									
	Transporter 1 Printed/Typed Name <b>Chuck Kewitcl</b>		Signature <i>Chuck Kewitcl</i>		Month Day Year <b>4 27 97</b>					
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name		Signature		Month Day Year					
	18 Discrepancy									
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
	18b Alternate Facility (or Generator)					U S EPA ID Number				
	Facility's Phone					Manifest Reference Number				
18c Signature of Alternate Facility (or Generator)									Month Day Year	
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)										
1 <b>H135</b>		2		3		4 <b>DICE 01160</b>				
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a										
Printed/Typed Name <b>BUCHER RECA</b>					Signature <i>Bucher ReCA</i>		Month Day Year <b>5 10 10</b>			

EPA Form 8700-22 (Rev 3-05) Previous editions are obsolete.

1) 0038139 2) 1) 2331445/435279

3)

4)

DESIGNATED FACILITY TO GENERATOR

# Certificate of Treatment/Recycling

ISSUED TO

AIR LIQUID AMERICA

FOR

MANIFEST NUMBER 000201911SKS DATE RECEIVED 5/1/2007

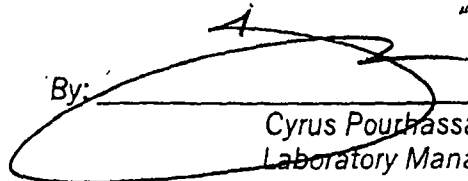
The aqueous waste received on the above manifest will be treated to standards mandated by the FEDERAL CLEAN WATER ACT and to effluent requirements established by the Sanitation Districts of Los Angeles County. Waste treatment and recycling is performed under permits granted to DeMENNO/KERDOON, a California Corporation, by the California Department of Toxic Control (DTSC), in coordination with the Environmental Protection Agency, in accordance with the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, together with applicable federal and state regulations including but not limited to waste discharge requirements established by the Sanitation Districts of Los Angeles County.

When the above described waste material is accepted by DeMENNO/KERDOON and treated/recycled and the aqueous phase discharged for further treatment by the Sanitation Districts, the certificate holder's responsibility for the waste material is eliminated under both RCRA and Proposition 65. Upon request, DeMENNO/KERDOON will issue this certificate that all waste material has been handled in accordance with applicable permits and the certificate holder's liability has been terminated.

DeMENNO/KERDOON

"Compliance Through Recycling"

By:

  
Cyrus Pourhassanian  
Laboratory Manager

Date: 5/7/2007

2000 North Alameda Street ☐ Compton ☐ California ☐ 90222  
Telephone (310) 537-7100 ☐ Facsimile (310) 639-2946

DICE 01161

7-088-06

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator ID Number CAL000021160	2 Page 1 of 1	3 Emergency Response Phone 1-800-468-1760	4. Manifest Tracking Number 000201751 SKS		
5 Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 Generator's Phone 562-945-1383							
6 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC					U.S. EPA ID Number TXR000050930		
7 Transporter 2 Company Name TRIAD TRANSPORT INC.					U.S. EPA ID Number OKD981588791		
8 Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208 Facility's Phone 940-483-5200					U.S. EPA ID Number 000618 TXD077603371		
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes
	X	1 WASTE AEROSOLS 2.1 UN1950 (ERG#126)	1	DM	150	P	D001 331 OUTS 801H
	X	2 RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)	1	DM	400	P	D001 D005 D006 D007 D008 OUTS 219H OUTS 4091
		3 NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	2	DM	500	P	NONE 352 OUTS 4091
		4 NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P	NONE 352 OUTS 4091
14 Special Handling Instructions and Additional Information SK TRCK#108388174 0002215524							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name Anita MHCAS		Signature Anita MHCAS		Month Day Year 10/9/10			
TRANSPORTER INTL	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.				
	17 Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Signature Month Day Year 10/9/10		Transporter 2 Printed/Typed Name Signature Month Day Year 10/12/10				
DESIGNATED FACILITY	18 Discrepancy 18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number						
	18b Alternate Facility (or Generator) Facility's Phone					U.S. EPA ID Number	
	18c Signature of Alternate Facility (or Generator)					Month Day Year	
	19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1 H141 2 H061 3 H061 4 DICE 01162						
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a Printed/Typed Name Signature Month Day Year							

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

1) 0020332 2) 0163141 3) 0187688 4) 0187688

DESIGNATED FACILITY TO GENERATOR

1) 2223148/3435148 2) 2224730/3435155 3) 2000523/2081761 4) 9021437/2113626

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4 Manifest Tracking Number <b>000201751 SKS.</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b> Generator's Phone <b>562-945-1383</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC.</b>				U.S. EPA ID Number <b>TXR000050930</b>			
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>				U.S. EPA ID Number <b>OKD981588791</b>			
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>				U.S. EPA ID Number <b>000618</b>			
Facility's Phone <b>940-483-5200</b>				<b>TXKD077603371</b>			
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes
	X	1 WASTE AEROSOLS 2.1 UN1950 (ERG#126)	1	DM	150	P	D001 331 OUTS 801H
	X	2 RQ WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)	1	DM	50	P	D001 D005 D006 D007 D008 OUTS 219H OUTS 409T
		3 NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	2	DM	500	P	NONE 352 OUTS 409T
		4 NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P	NONE 352 OUTS 489T
14 Special Handling Instructions and Additional Information <b>SK TRCK#108388174 0002215524</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name <i>Timothy...</i>		Signature <i>[Signature]</i>		Month <i>10</i> Day <i>10</i> Year <i>98</i>			
INT'L	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.				
	17 Transporter Acknowledgment of Receipt of Materials						
TRANSPORTER	Transporter 1 Printed/Typed Name <i>Joe...</i>		Signature <i>[Signature]</i>		Month <i>10</i> Day <i>10</i> Year <i>98</i>		
	Transporter 2 Printed/Typed Name		Signature		Month <i>10</i> Day <i>10</i> Year <i>98</i>		
DESIGNATED FACILITY	18 Discrepancy						
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	18b Alternate Facility (or Generator) Manifest Reference Number U.S. EPA ID Number						
	Facility's Phone						
	18c Signature of Alternate Facility (or Generator) Month Day Year						
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a							
Printed/Typed Name		Signature		Month Day Year			



3400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-609-3740  
www.safety-kleen.com



DUNS NO 05-397-6551

FED ID NO 396090019

CUSTOMER

CUSTOMER NO

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	BRIAN CASTANEDA		07		M004109096
			CREDIT CODE	PREVIOUS BALANCE	BAL OVER 60 DAYS
			BUSINESS TYPE	CHAIN	OUTER COUNTY
			SVC P/C	PROD P/C	
			LOCATION	TAX EXEMPTION NO	
			708806		

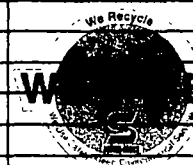
2-2155-24  
Air Hightbe asc  
8832 Dice Road

Smith & Sprague, CA 90670

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C O M S TAX	PRODUCT TAX
6-18-07	0333				PW				

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)	CHANGE SCD DATE (M/Y)	INV CODE	PROMO NO	MSDS GIVEN
									CLEAN SPENT 9 OF CONT SK DOT							
	8888	3435148	875120	1	412	-	412									
	8888	3435155	875020	1	259	-	259									
	8888	2081761		2	632	-	632									
	1013369	Emps (55)		2	130	10.94	141.27									
	3345	Emps (30)		1	50	4.13	54.13									

DICE 01164



TOTAL-SERVICE/PRODUCTS				1483 <sup>50</sup>	14 <sup>96</sup>	1483 <sup>96</sup>											
USEPA TRANSPORTER 1 ID NO.	USEPA TRANSPORTER 2 ID NO.	GENERATOR USEPA ID NO.	GENERATOR STATE ID NO.														
TXR000050930		01000021166															

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)										12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	5163055	I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES	
HAZARDOUS WASTE, LIQUID, N.O.S., 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)													839		0 TO 220 LBS./MONTH	
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS IMMERSION CLEANER)													14311		220 LBS TO 2,200 LBS./MONTH	
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS PARTS WASHER SOLUTION)													14941		GREATER THAN 2,200 LBS./MONTH	

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS	USA EPA ID NO.	STATE ID NO
--------------------------------------	----------------------------	--	----------------	-------------

PAYMENT SECTION	CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO.
	CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
	INVOICE #	AMOUNT \$	INVOICE #
	AMOUNT \$		
PREVIOUS CREDIT CARD NO			
CREDIT CARD NO.		AMEX VISA MC	EXP. DATE
CUSTOMER REFERENCE			

MANIFEST NO.	000201751 SAH
LDR MESSAGE	
MANIFEST CODE	SEQ #
	12 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION. THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS	
*This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.*	
Print Customer Name	
By Anita Macias	
Customer's Authorized Representative	

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	41498.3
DO NOT WRITE IN THE AREA BELOW	
M004109096	
000333	

SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev. 05/04)



<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2. Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000202609 SKS</b>			
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone 562-945-1383</b>								
Generator's Site Address (if different than mailing address) <b>CA 90670</b>								
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>			
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>			
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, 940-483-5200</b>					U.S. EPA ID Number <b>000618 TX 76208 TXD077603371</b>			
Facility's Phone								
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes	
	X	1 WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		P	DO01 331 OUTS 501H	
	X	2 RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#128)		DM		P	DO01 DO05 DO06 DO07 DO08 OUTS 219H DO09	
		3 NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	001	DM	00260	P	NONE 352 OUTS 1891	
		NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)	001	DM	00390	P	NONE 352 OUTS 1891	
14 Special Handling Instructions and Additional Information <b>SK TRCK#108197820 0002215524</b>								
SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256								
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offendor's Printed/Typed Name Signature Month Day Year <b>Anita MACIAS</b> <i>Anita Macias</i> 10/2/23/07								
TRANSPORTER/INTL	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit Date leaving U.S.							
	Transporter signature (for exports only)							
TRANSPORTER/INTL	17 Transporter Acknowledgment of Receipt of Materials							
	Transporter 1 Printed/Typed Name Signature Month Day Year <b>Isu</b> <i>Isu</i> 10/2/23/07							
TRANSPORTER/INTL	Transporter 2 Printed/Typed Name Signature Month Day Year <b>Sally Shoemaker</b> <i>Sally Shoemaker</i> 02/28/07							
	18 Discrepancy							
DESIGNATED FACILITY	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
	Manifest Reference Number							
	18b Alternate Facility (or Generator) U.S. EPA ID Number							
DESIGNATED FACILITY	Facility's Phone <b>DICE 01165</b>							
	18c Signature of Alternate Facility (or Generator) Month Day Year <b>DICE 01165</b>							
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1 2 3 4 <b>H111 1111</b>								
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name Signature Month Day Year <b>W. D. D. D.</b> <i>W. D. D. D.</i> 03/05/07								

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-453-1760</b>	4. Manifest Tracking Number <b>000202609 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS Generator's Phone 562-945-1383</b>							
Generator's Site Address (if different than mailing address) <b>CA 90670</b>							
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					U.S. EPA ID Number <b>000618</b>		
Facility's Phone <b>940-483-5200</b>					<b>TXD077603371</b>		
9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes	
		No	Type				
X	1 WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		P	DO01	331 OUTS BO1H
X	2 NO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#128)		DM		P	DO01	DO05 DO06 DO07 DO08 OUTS 219H
	3 NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)		DM		P	NONE	352 OUTS 1091
	4 NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P	NONE	352 OUTS 1091
14 Special Handling Instructions and Additional Information <b>SK TRCK#108197820 0002215524</b>							
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name				Signature		Month Day Year	
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name				Signature		Month Day Year	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
18 Discrepancy							
18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number							
18b Alternate Facility (or Generator)					U.S. EPA ID Number		
Facility's Phone							
18c Signature of Alternate Facility (or Generator)					Month Day Year		
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
						<b>DICE 01166</b>	
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name				Signature		Month Day Year	

## BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No (If Applicable)

CAK000021160

Document No

75130

2 Page 1  
of 1

3 Shipper's Name and Mailing Address

8832 Dice Rd  
Santa Fe Springs CA 90670

4 Shipper's Phone

562-915-1373

5 Transporter 1 Company Name

SAFETY-KLEEN SYS, INC

6

US EPA ID Number

TXR000050930

A Transporter's Phone

800 669-5740

7 Transporter 2 Company Name

8

US EPA ID Number

B Transporter's Phone

9 Designated Facility Name and Site Address

SAFETY-KLEEN SYSTEMS, INC.  
1722 COOPER CREEK ROAD 10625 Hitcher St  
DENTON, TX 76208

10

US EPA ID Number

TXD077603371

C Facility's Phone

686-401246  
940-483-5200

11 Shipping Name and Description

HM

12 Containers

No.

Type

13  
Total  
Quantity14.  
Unit  
Wt/Vol

a

RESIDUE: LAST CONTAINED

DF

b

Used Cleaning Compounds, Liquid, N03  
(Non-Regulated Liquid Not US DOT Regulated)  
Agvents for Solutia 03#/gal

002 DM

0050 G

c

d

15 Special Handling Instruction and Additional Information

108235764

108206321

MFST R/T#000000000 0-000-00

EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 81300, 40355, 41015, 40582, 84815

SKDOT# A:

1617 B: 492

C:

D:

## 16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

Printed/Typed Name

Signature  
Date  
US DOT regulated

Month Day Year

## 16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal

Printed/Typed Name

Signature  
Date  
DOT regulated

Month Day Year

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19 Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19

Printed/Typed Name

Signature

Month Day Year

DICE 01167

Danny Barajas

Danny Barajas

02/23/07



Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4 Manifest Tracking Number <b>000202608 SKS</b>	
5 Generator's Name and Mailing Address <b>AIR LIQUIDE USC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>			Generator's Site Address (if different than mailing address)			
6 Generator's Phone <b>562-945-1383</b>						
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <i>Triad Transportation Inc</i>				U.S. EPA ID Number <i>040981588791</i>		
8 Designated Facility Name and Site Address <b>US ECOLOGY NEVADA 11 MILES S. HWY 95 BEATTY NV 89003</b>				U.S. EPA ID Number <b>050505</b>		
Facility's Phone <b>775-553-2203</b>				<b>NVT330010000</b>		
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type	11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes
		<b>CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID) 8 UN3264 PG III (ERG#154)</b>	<i>003</i> <i>OK</i>	<i>01040</i>	<b>P</b>	<b>NONE 135</b>
	2					
	3					
	4					
14 Special Handling Instructions and Additional Information <b>SK TRCK#108197810 0002215524</b>						
15 <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</b>						
15 GENERATOR'S OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offor's Printed/Typed Name <i>Arturo Luna</i>		Signature <i>Arturo Luna</i>		Month Day Year <i>02 14 07</i>		
TRANSPORTER	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.			
	17 Transporter Acknowledgment of Receipt of Materials					
	Transporter 1 Printed/Typed Name <i>Jose</i>		Signature <i>Jose</i>		Month Day Year <i>02 14 07</i>	
Transporter 2 Printed/Typed Name <i>Glen Martin</i>		Signature <i>Glen Martin</i>		Month Day Year <i>02 26 07</i>		
DESIGNATED FACILITY	18 Discrepancy					
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	Manifest Reference Number					
	18b Alternate Facility (or Generator) U.S. EPA ID Number					
	Facility's Phone					
18c Signature of Alternate Facility (or Generator) Month Day Year						
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1 <i>H132</i>		2		3		4 <b>DICE 01169</b>
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name <i>Misty Brooke</i>		Signature <i>Misty Brooke</i>		Month Day Year <i>02 27 07</i>		

# CERTIFICATE OF DISPOSAL

**March 13,2007**

AIR LIQUIDE 05C  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670

This is to certify that waste as defined on Uniform Hazardous Waste Manifest number 000202608SKS/000202608 was received by U.S. Ecology, Inc., on 02/27/2007. The waste(s) were subsequently treated, if required by 40 CFR Part 268 and U.S. Ecology's permits and disposed of by 02/27/2007 in accordance with permits and laws regulating this facility.

**Reference Number:** 07022602499-000202608SKS-1-1

**Material:** 3 55 GALLON PLASTIC (BATCH WASTE )

**Process:** Solidification

**Facility:** U.S. ECOLOGY NEVADA, INC.  
HWY 95 11 MILES S. OF BEATTY  
BEATTY, NV 89003  
EPA ID: NVT330010000

**Waste Type:** NON-RCRA WASTE

**Customer:** SAFETY-KLEEN SYSTEMS, INC.

**Printed Name:** MARK JOHN

**Signature:**  \_\_\_\_\_

**Title:** ENV MANAGER

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-003

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of <b>1</b>	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000202608 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE USA 8632 DICE ROAD SANTA FE SPRINGS Generator's Phone <b>562-945-1383</b></b>				Generator's Site Address (if different than mailing address) <b>CA 90670</b>			
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U S EPA ID Number <b>TXR000050930</b>			
7 Transporter 2 Company Name				U S EPA ID Number			
8 Designated Facility Name and Site Address <b>US ECOLOGY NEVADA 11 MILES S. HWY 95 BEATTY 775-553-2203</b>				050505 <b>NV 89003</b>		U S EPA ID Number <b>NVT330010000</b>	
Facility's Phone							
GENERATOR	9a HM	9b U S DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes
			No	Type			
		<b>1 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID) 8 UN3264 PG III (ERG#154)</b>		<b>DM</b>		<b>P</b>	<b>NONE 135</b>
		<b>2</b>					
		<b>3</b>					
	<b>4</b>						
14 Special Handling Instructions and Additional Information <b>SK TRCK#108197810 0002215524</b>							
<del>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</del> 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name				Signature		Month Day Year	
TRANSPORTER	16 International Shipments <input type="checkbox"/> Import to U S <input type="checkbox"/> Export from U S Port of entry/exit _____ Date leaving U S _____						
	17 Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name				Signature		Month Day Year
	Transporter 2 Printed/Typed Name				Signature		Month Day Year
DESIGNATED FACILITY	18 Discrepancy						
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	Manifest Reference Number						
	18b Alternate Facility (or Generator)				U S EPA ID Number		
	Facility's Phone						
	18c Signature of Alternate Facility (or Generator)					Month Day Year	
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
	1		2		3		4
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							<b>DICE 01171</b>
Printed/Typed Name				Signature		Month Day Year	

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	BRIAN CASTANEDA		07		M003989189

CREDIT CODE	PREVIOUS BALANCE	BAL. OVER 60 DAYS		
BUSINESS TYPE	CHAIN	OUTER COUNTY	SVC P/C	PROD P/C
LOCATION		TAX EXEMPTION NO		
708606				

SERVICE DATE	SALES REP NO	CUSTOMER P O NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	PW	ASSOC CODE	SERVICE TAX	C O.M.S. TAX	PRODUCT TAX
2-10-7	0333					PW				

[illegible]

TOTAL-SERVICE/PRODUCTS

USEPA TRANSPORTER 1 ID NO.	USEPA TRANSPORTER 2 ID NO.	GENERATOR USEPA ID NO.	GENERATOR STATE ID NO.	→	USEPA APPROVED LAMP ASSEMBLY CONDITION	USEPA APPROVED INSTALLATION	USEPA APPROVED AFFID TO MACHINE
TXR000050930					<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						EMERGENCY CLOSING OF LID UNOBSTRUCTED	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)	12 CONTAINERS NO	13 TYPE	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	5163055	CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)					839		0 TO 220 LBS./MONTH <u>ARE</u> INITIALS
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS IMMERSION CLEANER)					14311		220 LBS. TO 2,200 LBS./MONTH <u>          </u> INITIALS
NON-RCRA HAZARDOUS WASTE, LIQUID (AQUEOUS PARTS WASHER SOLUTION)					14941		GREATER THAN 2,200 LBS./MONTH <u>          </u> INITIALS
<i>FRS waste</i>	<i>3</i>	<i>dr</i>				<i>3</i>	<u>          </u> INITIALS

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE	USA EPA ID NO
			STATE ID NO

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO	
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE	
		<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS	
INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$
PREVIOUS CREDIT CARD NO.			
CUSTOMER REFERENCE			

MANIFEST NO.	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	4 D

WASTE MATERIALS

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

This is to certify that the above-named materials are properly classified, packaged, marked and labeled and are proper condition for transportation according to the applicable regulations of the Department of Transportation

Print Customer Name 02-14-07

Customer's Authorized Representative 02-14-07

in	TOTAL CHARGE (FROM ABOVE)	
	WASTE MIN (FROM ABOVE)	
	TOTAL DUE	

DO NOT WRITE IN THE AREA BELOW

M003989189  
000333

**SERVICE AND SALES ACKNOWLEDGMENT**  
PART 1367 (Rev. 05/04)



<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000151037 SKS</b>		
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>					Generator's Site Address (if different than mailing address)		
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					U.S. EPA ID Number <b>TXD077603371</b>		
Facility's Phone <b>940-483-5200</b>							
GENERATOR	9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers No Type		11 Total Quantity	12 Unit Wt/Vol	13 Waste Codes
	X	<del>WASTE AEROSOLS 2.1 UN1950 (ERG#126)</del>		DM		P	DO01 331 OUTS 501H
	X	<del>NO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#126)</del>		DM		P	DO01 DO05 DO06 DO07 DO08 OUTS 519H
		<del>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>	001	DM	00240	P	NONE 352 OUTS 4091
		<del>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>		DM		P	NONE 352 OUTS 4891
14 Special Handling Instructions and Additional Information <b>SK TRCK#108057786 0002215524</b>							
<b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b>							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name <b>Juan Puenrostro</b>					Signature <i>[Signature]</i>		Month Day Year <b>10/25/07</b>
TRANSPORTER INTL	16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.				
	Transporter signature (for exports only)						
TRANSPORTER	17 Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name <b>Joe Mann</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/25/07</b>		
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name		Signature		Month Day Year		
	18 Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	18b. Alternate Facility (or Generator) Manifest Reference Number U.S. EPA ID Number						
	Facility's Phone						
18c. Signature of Alternate Facility (or Generator) Month Day Year							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
				<b>H141</b>			
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name <b>S. H. Wiley</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/31/07</b>			

your copy

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000151037 SKS</b>	
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>						
Generator's Phone						
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>				U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>				U.S. EPA ID Number <b>TXD077603371</b>		
Facility's Phone <b>940-483-5200</b>						
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No Type		11 Total Quantity	12 Unit WL/Vol
	X	WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		P
	X	BO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		P
		NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)		DM		P
		NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P
13 Waste Codes						
						D001 331 DUTS 501H
						D001 D005 D006 D007 D008 DUTS 219H NONE 352 DUTS 1891
						NONE 352 DUTS 1891
						NONE 352 DUTS 1891
14 Special Handling Instructions and Additional Information <b>SK TRCK#108057786 0002215524</b>						
<b>DICE 01174</b>						
<b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b>						
15. GENERATOR'S/OFFEROR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name			Signature		Month Day Year	
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit Date leaving U.S.						
17 Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name			Signature		Month Day Year	
Transporter 2 Printed/Typed Name			Signature		Month Day Year	
TRANSPORTER	18 Discrepancy					
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	Manifest Reference Number					
	18b Alternate Facility (or Generator) U.S. EPA ID Number					
	Facility's Phone					
DESIGNATED FACILITY	18c Signature of Alternate Facility (or Generator)					Month Day Year
	19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
	1	2	3	4		
	20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a					
	Printed/Typed Name			Signature		Month Day Year

**SERVICE AND SALES ACKNOWLEDGMENT**  
PART 1367 (Rev. 05/04)

SAFETY-KLEEN WASTE MATERIAL PROFILE				PROFILE #	
Customer # <u>2215524</u>		Analytical Part # _____		LOB # <input type="checkbox"/> 28 <input type="checkbox"/> 26 <input checked="" type="checkbox"/> 24 <input type="checkbox"/> 20 <input type="checkbox"/> 19	
Sales Name <u>GLORIA BRICENO</u>		Employee # _____		Location/Branch # <u>708806</u>	
		Rep Email <u>rmendoza@safety-kleen.com</u>			
<b>A. CUSTOMER INFORMATION</b> <span style="float: right;"><input type="checkbox"/> Check If Billing Same</span>					
Generator <u>AIR LIQUIDE 05C</u>		Billing Company _____			
Facility Address (No P O Box) <u>8832 DICE ROAD</u>		Billing Address _____			
		City/State/Zip _____			
City/State/Zip <u>SANTA FE SPRINGS / CA / 90870</u>		Billing Contact _____			
Technical Contact <u>RAFAEL MOTA</u>		Phone _____ FAX _____			
Phone <u>562-945-1383</u> FAX <u>562-893-1156</u>		Email _____			
NAICS # <u>28130000</u> <input checked="" type="checkbox"/> CESOG <input type="checkbox"/> SOG <input type="checkbox"/> LQG EPA ID# <u>CAL000021160</u>		State ID# _____			
<b>B. SHIPPING INFORMATION</b>					
US DOT Shipping Name _____					
Hazardous Class/Division # _____		UN/NA # _____		Packing Group _____ RQ _____	
Size <u>5G</u>		Container Type: <u>POLY</u>		Quantity <u>1</u> Frequency <u>ONE-TIME ONLY</u>	
<b>C. GENERAL MATERIAL &amp; REGULATORY INFORMATION</b>					
Name of Material <u>OXYGEN SENSOR MICRO FUEL CELLS</u>					
Process Generating the Material <u>EXPIRED PRODUCT</u>					
Yes No		Yes No			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/> Contains UHCs/Constituents of Concern List in section D	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/> Exempt Waste If yes, list ref 40 CFR _____	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/> For Arlesia, MS Does waste material contain, or is derived from, dioxin-listed wastes with F020-F023 or F027 waste codes?	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/> Waste Subject to Benzene NESHAP regulations	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> State Hazardous Waste List Codes <u>181</u>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> EPA Hazardous Waste List Codes <u>D002 D008</u>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> TSCA Regulated PCB Waste List PCB level in section D	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> Regulated Ozone Depleting Substance	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> CERCLA Regulated (Superfund) Waste	
		Source Code <u>G</u> <u>G15</u> Form Code <u>W</u> <u>W319</u> Mgt Method <u>H</u>			
<b>D. MATERIAL COMPOSITION</b> (Range Total > or = 100%) or ppm					
<u>OXYGEN SENSOR MICRO FUEL CELLS</u>		<u>100%</u>			
<input checked="" type="checkbox"/> MSDS Attached		Total: <u>100%</u>			
<b>E. REACTIVE CHARACTERISTICS</b>					
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> React Sulfides _____ ppm		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Shock/Explosive			
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> React Cyanides _____ ppm		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Polymerizable			
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Water/Air (Pyrophoric) React		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other-Comments			
Elemental Constituents (ppm) NR - Not Reported					
<input type="checkbox"/> No detectable Elements		As <u>NR</u>		Ba <u>NR</u>	
Bc <u>NR</u>		Cd <u>NR</u>		Cr <u>NR</u>	
Ni <u>NR</u>		Se <u>NR</u>		Ag <u>NR</u>	
				Tl <u>NR</u>	
				V <u>NR</u>	
				Pb <u>&gt;1ppm</u>	
				Hg <u>NR</u>	
Metals Data based on <input type="checkbox"/> TCLP <input type="checkbox"/> Total Analysis <input checked="" type="checkbox"/> Generator Knowledge (no leaching)					
<b>F. PHYSICAL CHARACTERISTICS</b>					
Flash Point _____ °F (if <73°F)		pH Range <input type="checkbox"/> ≤2			
<input type="checkbox"/> 73-100 <input type="checkbox"/> 100-141		<input type="checkbox"/> >2-4 <input type="checkbox"/> >4-10			
<input type="checkbox"/> 142-200 <input checked="" type="checkbox"/> ≥200		<input type="checkbox"/> >10-12.5 <input checked="" type="checkbox"/> ≥12.5			
# Phases <u>1</u>		% Liquid _____		Viscosity cps <u>1000 30,000</u>	
% Sludge _____		% Solid <u>100%</u>		% Halogens _____	
BTU's/lb <u>&lt;5,000</u>		Specific Gravity <u>1</u>			
<b>G. COMMENTS</b>					
<u>THIS IS LIKE A BATTERY CONTAINING LIQUID PROFILED W/ PH OF &gt;12.5 DUE TO SHIPPING DESCRIPTION &amp; INDICATED IT TO BE A SOLID</u>					
CUSTOMER RESTRICTIONS <input type="checkbox"/> Yes <input type="checkbox"/> No					
<b>H. GENERATOR'S CERTIFICATION</b>					
I hereby certify that I am an authorized agent of the generator, and warrant on behalf of the generator that the information supplied on this form and on any attachments or supplements hereto is complete and accurate, and that all known or suspected hazards of the material(s) described herein have been disclosed. I agree that if the sample test results indicate a discrepancy with any information supplied on this form, that either Safety-Kleen or the generator may initiate further testing and evaluation in accordance with the terms and conditions of the contract between Safety-Kleen and the generator and that this profile confirmation may be amended accordingly.					
Generator Signature <u>Rafael Mota</u>		Printed Name and Title <u>RAFAEL MOTA - MANAGER</u>		Date <u>5/8/2007</u>	

Profile # 21136691 Use 211 - Water

TS3M C398

VIEW REPORT

2007-01-24 P6

09.57.42

PRINT: VIEW REPORT USING PF KEY(S) OR TYPE SEARCH STRING, PRESS ENTER

SEARCH STRING:

X SORBENT ADDED

X BIODEGRADABLE?

X EXEMPT WASTE; IF YES, LIST REFERENCE 40 CFR

X STATE HAZARDOUS WASTE

X EPA HAZARDOUS WASTE

STATE WASTE CODES: CA 221 TX OUTS1191

CTRY: USA

EPA WASTE CODES: NONE

\*\*\* EXPIRED

CONTINUED ON NEXT PAGE

8XXXX-RXXXX

PREQUALIFICATION EVALUATION

PAGE 3 OF 6

OIL RECOVERY SERVICE

COMPLETED: 08/18/99

VACUUM SERVICES

REVISED: 05/17/00

\*\*\* SAMPLE MARKED FOR PURGE \*\*\*

RUN: 01/24/07

EXPIRED

CONTROL #: 1935423-2

BRANCH/SUBMITTER: 708806

LAB #: 9935423-9

PF1=HELP, PF2=PREV, PF3=EXIT, PF5=REFSH, PF7=BWD, PF8=FWD, PF10=PREV RPT

PF11=NEXT RPT, PF19=TOP, PF20=BOTM, PF21=PREV PAGE, PF22=NEXT PAGE

DICE 01177

# Profile # 2113626 Dil + Absorbent

TS3M C398

VIEW REPORT

2007-01-24 P6

12.03.24

PRINT: VIEW REPORT USING PF KEY(S) OR TYPE SEARCH STRING, PRESS ENTER

SEARCH STRING:

X UHC IN ADDENDUM  
X MEETS LDR STANDARDS  
X PARTIALLY MEETS (FOR LANDFILL ONLY)  
X COMMINGLED WASTE  
X SORBENT ADDED  
X BIODEGRADABLE?  
X EXEMPT WASTE; IF YES, LIST REFERENCE 40 CFR 279  
X STATE HAZARDOUS WASTE  
X EPA HAZARDOUS WASTE

STATE WASTE CODES: MI 021L TX OUTS4891 TX 4891 CA 352 CTRY: USA  
SC 7777 USA

EPA WASTE CODES: NONE

D. MATERIAL COMPOSITION: SIP RMP COMPOUND DENOTED WITH #

1. CHEMICAL/PHYSICAL CONSTITUENTS:

NO VOLATILE ORGANICS DETECTED (<0.1% EACH .10 WT%

PF1=HELP, PF2=PREV, PF3=EXIT, PF5=RFSH, PF7=BWD, PF8=FWD, PF10=PREV RPT

PF11=NEXT RPT, PF19=TOP, PF20=BOTM, PF21=PREV PAGE, PF22=NEXT PAGE

Profile # 2081761 Paint Booth Filters

TS3M C398

VIEW REPORT

2007-01-24 P6

12.00.58

PRINT: VIEW REPORT USING PF KEY(S) OR TYPE SEARCH STRING, PRESS ENTER

SEARCH STRING:

X UHC IN ADDENDUM

X MEETS LDR STANDARDS

X PARTIALLY MEETS (FOR LANDFILL ONLY)

X COMMINGLED WASTE

X SORBENT ADDED

X BIODEGRADABLE?

X EXEMPT WASTE; IF YES, LIST REFERENCE 40 CFR

X STATE HAZARDOUS WASTE

X EPA HAZARDOUS WASTE

STATE WASTE CODES: CA 352

TX OUTS4091

CTRY: USA

EPA WASTE CODES: NONE

D. MATERIAL COMPOSITION: SIP

RMP COMPOUND DENOTED WITH #

1. CHEMICAL/PHYSICAL CONSTITUENTS:

RESIDUE

97.00

WT%

PF1=HELP, PF2=PREV, PF3=EXIT, PF5=RF5H, PF7=BWD, PF8=FWD, PF10=PREV RPT

PF11=NEXT RPT, PF19=TOP, PF20=BOTM, PF21=PREV PAGE, PF22=NEXT PAGE

Profile # 2113670 Water-Based Paint

TS3M C398

VIEW REPORT

2007-01-24 P6

09.54.28

PRINT: VIEW REPORT USING PF KEY(S) OR TYPE SEARCH STRING, PRESS ENTER

SEARCH STRING:

X UHC IN ADDENDUM  
X MEETS LDR STANDARDS  
X PARTIALLY MEETS (FOR LANDFILL ONLY)  
X COMMINGLED WASTE  
X SORBENT ADDED  
X BIODEGRADABLE?  
X EXEMPT WASTE; IF YES, LIST REFERENCE 40 CFR  
X STATE HAZARDOUS WASTE  
X EPA HAZARDOUS WASTE

STATE WASTE CODES: CA 135 TX OUTS1191 CTRY: USA

EPA WASTE CODES: NONE

\*\*\* MISSING PREQUALIFICATION INFO CONTINUED ON NEXT PAGE

8XXXX-RXXXX PREQUALIFICATION EVALUATION PAGE 3 OF 6

OIL RECOVERY SERVICE COMPLETED: 08/20/99

VACUUM SERVICES REVISED: 05/17/00

PF1=HELP, PF2=PREV, PF3=EXIT, PF5=RFSH, PF7=BWD, PF8=FWD, PF10=PREV RPT

PF11=NEXT RPT, PF19=TOP, PF20=BOTM, PF21=PREV PAGE, PF22=NEXT PAGE



SAMPLE # 3435148 AEROSOL CANS

TS3M M269

VIEW REPORT

2007-01-25 P7

12.53.58

PRINT: VIEW REPORT USING PF KEY(S) OR TYPE SEARCH STRING, PRESS ENTER

SEARCH STRING:

X CERCLA REGULATED (SUPERFUND) WASTE  
X WASTE CONTAINS UHC'S/CONSTITUENTS OF CONCERN  
X UHC IN SECTION D  
X EXEMPT WASTE; IF YES, LIST REFERENCE 40 CFR  
X STATE HAZARDOUS WASTE  
X ARTESIA MS: DIOXIN-LISTED WASTE W/F020-F023 OR F02  
X EPA HAZARDOUS WASTE  
STATE WASTE CODES: TX OUTS801H CA 331 CTRY: USA  
BPA WASTE CODES: D001  
ORIGIN CD: 1 SOURCE CD: G11 FORM CD: W801 SYSTEM CD:

D. MATERIAL COMPOSITION: PAPER RMP COMPOUND DENOTED WITH #  
1. CHEMICAL/PHYSICAL CONSTITUENTS:  
AEROSOL CAN - PAINT 100.00 PPM  
2. ELEMENTAL CONSTITUENTS:

PF1=HELP, PF2=PREV, PF3=EXIT, PF5=REFSH, PF7=BWD, PF8=FWD, PF10=PREV RPT  
PF11=NEXT RPT, PF19=TOP, PF20=BOTM, PF21=PREV PAGE, PF22=NEXT PAGE

# Profile #2113668 Neutralized Caustic Rinse Water

TS3M C398

VIEW REPORT

2007-01-24 P6

12.05.12

PRINT: VIEW REPORT USING PF KEY(S) OR TYPE SEARCH STRING, PRESS ENTER

SEARCH STRING:

X UHC IN ADDENDUM

X MEETS LDR STANDARDS

X PARTIALLY MEETS (FOR LANDFILL ONLY)

X COMMINGLED WASTE

X SORBENT ADDED

X BIODEGRADABLE?

X EXEMPT WASTE; IF YES, LIST REFERENCE 40 CFR

X STATE HAZARDOUS WASTE

X EPA HAZARDOUS WASTE

STATE WASTE CODES: CA 122

TX OUTS1191

CTRY: USA

EPA WASTE CODES: NONE

\*\*\* MISSING PREQUALIFICATION INFO

CONTINUED ON NEXT PAGE

8XXXX-RXXXX

PREQUALIFICATION EVALUATION

PAGE 3 OF 6

OIL RECOVERY SERVICE

COMPLETED: 08/18/99

VACUUM SERVICES

REVISED: 03/01/00

PF1=HELP, PF2=PREV, PF3=EXIT, PF5=REFSH, PF7=BWD, PF8=FWD, PF10=PREV RPT

PF11=NEXT RPT, PF19=TOP, PF20=BOTM, PF21=PREV PAGE, PF22=NEXT PAGE


<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of <b>1</b>	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000120890 CEX</b>	
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>						
Generator's Site Address (if different than mailing address)						
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>	
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>					U.S. EPA ID Number <b>OKD981588791</b>	
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					U.S. EPA ID Number <b>000618</b>	
Facility's Phone <b>940-463-5200</b>					<b>TXD077603371</b>	

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12. Unit WL/Vol.	13. Waste Codes		
		No.	Type					
X	<del>WASTE AEROSOLS 2.1 UN1950 (ERG#126)</del>		DM		P	D001	331	OUTS D01H
X	<del>NO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)</del>		DM		P	D001	D005	D006
	<del>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>	001	DM	0020	P	D007	D008	OUTS D19H
	<del>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>	002	DM	00400	P	NONE	352	OUTS D091

14 Special Handling Instructions and Additional Information **SK TRCK#107952342** **0002215524**

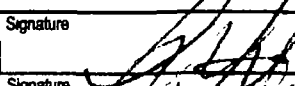
**SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256**

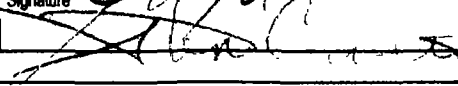
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Officer's Printed/Typed Name **Arthur T. Fugate** Signature  Month **1** Day **4** Year **2008**

16 International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: \_\_\_\_\_ Date leaving U.S.: \_\_\_\_\_

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name **Jose M. Carr** Signature  Month **11** Day **20** Year **2006**

Transporter 2 Printed/Typed Name **Steve C. Carr** Signature  Month **11** Day **17** Year **2007**

18 Discrepancy

18a Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number \_\_\_\_\_

18b Alternate Facility (or Generator) \_\_\_\_\_ U.S. EPA ID Number \_\_\_\_\_

Facility's Phone: \_\_\_\_\_

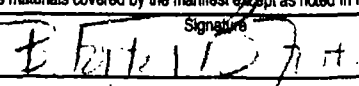
18c Signature of Alternate Facility (or Generator) \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Year \_\_\_\_\_

19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1	2	3	4
	<b>H061</b>	<b>H141</b>	

**DICE 01183**

20 Designated Facility Owner or Operator: Certification of receipt of hazardous waste materials covered by the manifest except as noted in item 18a

Printed/Typed Name **E. Fugate** Signature  Month **10** Day **10** Year **2007**

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of 1	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000120890 CEX</b>			
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>								
Generator's Site Address (if different than mailing address)								
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>						U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>						U.S. EPA ID Number <b>OKD981588791</b>		
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>						U.S. EPA ID Number <b>000618</b>		
Facility's Phone <b>940-463-5200</b>						<b>TXD077603371</b>		
9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11. Total Quantity	12 Unit Wt/Vol	13. Waste Codes		
		No.	Type					
X	<del>WASTE AEROSOLS 2.1 UN1950 (ERG126)</del>		DM		P	D001	351	OUTS D01H
X	<del>RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG128)</del>		DM		P	D001	D005	D006
	<del>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</del>		DM		P	NONE	352	OUTS D01H D091
	<del>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</del>		DM		P	NONE	352	OUTS D091
14 Special Handling Instructions and Additional Information <b>SK TRCK#107952342 0002215524</b>								
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offeror's Printed/Typed Name				Signature		Month Day Year		
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name				Signature		Month Day Year		
Transporter 2 Printed/Typed Name				Signature		Month Day Year		
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number								
Facility's Phone								
18c. Signature of Alternate Facility (or Generator) Month Day Year								
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1		2		3		4		
<b>DICE 01184</b>								
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name				Signature		Month Day Year		

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of <b>1</b>	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000151002 SKS</b>
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>			Generator's Site Address (if different than mailing address)		
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>	
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>				U.S. EPA ID Number <b>OKD981588791</b>	
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>				U.S. EPA ID Number <b>000618 TXD077603371</b>	
Facility's Phone <b>940-483-5200</b>					

9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10 Containers		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes		
		No	Type			D002	D006	D007
<b>X</b>	<b>WASTE CORROSIVE LIQUID, BASIC, INORGANIC N.O.S. (SODIUM HYDROXIDE, POTASSIUM HYDROXIDE) 8 UN3266 PG II (ERG#154)</b>	<b>001</b>	<b>DM</b>	<b>004/40</b>	<b>P</b>	<b>D002</b>	<b>D006</b>	<b>D007</b>
						<b>D008</b>	<b>121</b>	<b>OUTS 110H</b>

14 Special Handling Instructions and Additional Information **SK TRCK#106034204 0002215524**

**SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 816A1, 82739, 86256**

15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offoror's Printed/Typed Name Arthur Tejima Signature [Signature] Month 11 Day 17 Year 06

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/ext. \_\_\_\_\_ Date leaving U.S. \_\_\_\_\_

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name Joe [Signature] Signature [Signature] Month 11 Day 17 Year 06

Transporter 2 Printed/Typed Name George Motta Signature [Signature] Month 11 Day 17 Year 06

18 Discrepancy

18a Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number \_\_\_\_\_

18b Alternate Facility (or Generator) \_\_\_\_\_ U.S. EPA ID Number \_\_\_\_\_

Facility's Phone \_\_\_\_\_

18c Signature of Alternate Facility (or Generator) \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Year \_\_\_\_\_

19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1 <u>H141</u>	2	3	4
---------------	---	---	---

**DICE 01185**

20 Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name Andersson Signature [Signature] Month 11 Day 17 Year 06

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>CAL000021160</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000151002 SKS</b>				
5. Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>			Generator's Site Address (if different than mailing address)						
6. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>			U.S. EPA ID Number <b>TXR000050930</b>						
7. Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>			U.S. EPA ID Number <b>OKD981588791</b>						
8. Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>			U.S. EPA ID Number <b>000618 TXD077603371</b>						
Facility's Phone <b>940-463-5200</b>									
GENERATOR	9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	X	<b>WASTE CORROSIVE LIQUID, BASIC, INORGANIC N.O.S. (SODIUM HYDROXIDE, POTASSIUM HYDROXIDE) 8 UN3266 PG II (ERG154)</b>	1	DM		P	D002	D006	D007
							D008	121	OUTS 110H
	2								
	3								
4									
14. Special Handling Instructions and Additional Information <b>SK TRCK#108034204 0002215524</b>									
<b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343 41038 A16A1 A2739 A6256</b> 15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Offeror's Printed/Typed Name					Signature		Month Day Year		
							11-1-96		
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/ext Date leaving U.S.								
	17. Transporter Acknowledgment of Receipt of Materials								
	Transporter 1 Printed/Typed Name				Signature		Month Day Year		
	Transporter 2 Printed/Typed Name				Signature		Month Day Year		
DESIGNATED FACILITY	18. Discrepancy								
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
	18b. Alternate Facility (or Generator) Manifest Reference Number U.S. EPA ID Number								
	Facility's Phone								
	18c. Signature of Alternate Facility (or Generator)						Month Day Year		
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)									
1		2		3		4			
						<b>DICE 01186</b>			
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a									
Printed/Typed Name					Signature		Month Day Year		



3400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-868-5740  
www.safety-kleen.com



CUSTOMER NO

DUNS NO 06-397-8551		FED. ID NO. 398080019		CUSTOMER	
FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	RELEASE NO
626-575-4685	BRIAN CASTANEDA	02/17/07	06-51	23	0033275599
CREDIT CODE			PREVIOUS BALANCE		
E			1035.80		
BUSINESS TYPE			CHAIN	OUTER COUNTY	SVC P/C
09			1091	NO	2288
LOCATION			TAX EXEMPTION NO		
708806					

AIR LIQUIDE 05C

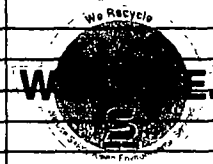
8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

BILL

Add Rep  
0333

SERVICE DATE		SALES REP NO.	CUSTOMER P.O. NUMBER		CUSTOMER PHONE #		TAX CODE		HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S TAX	PRODUCT TAX						
		433431			562-945-1383		05-095-8001		PW		0825		0825						
DEPT	SERVICE/PRODUCT	SURVEY NUMBER	REMARKS/ UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS			CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)	CHANGE EOL DATE (YY MM)	INV CODE	PROMO NO	RELEASE NO.	MSDS GIVEN
									CLEAN	SPENT	# OF CONT								
001	100009				101851	0.00	101.85	0.00						0					<input type="checkbox"/>
008	88888	40174436	375.0000		375		375						52						<input type="checkbox"/>
	7215	R015	112.00	2	224.00	18.47	242.48												<input type="checkbox"/>
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DICE 01187



TOTAL-SERVICE/PRODUCTS		CHECK APPROPRIATE BOXES		GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
		MACHINE CONDITION & CLEANLINESS		<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO. STICKER AFFIXED TO MACHINE	<input type="checkbox"/>	<input type="checkbox"/>
		LAMP ASSEMBLY CONDITION		<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>
USEPA TRANSPORTER ID NO: TXR000050930		USEPA TRANSPORTER ID NO: CAL000021160		12 CONTAINERS NO		13 TOTAL QUANTITY		14 UNIT WT/VOL		SK DOT NUMBER	
11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)										\$163059	
										I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES	
										0 TO 220 LBS./MONTH	
										INITIALS	
										220 LBS TO 2,200 LBS./MONTH	
										INITIALS	
										GREATER THAN 2,200 LBS./MONTH	
										INITIALS	

DESIGNATED FACILITY NAME AND ADDRESS				I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS.				USA EPA ID NO.			
								STATE ID NO.			
CASH <input type="checkbox"/>		TOTAL RECEIVED		APPLY PAYMENT TO.		LDR MESSAGE		TOTAL CHARGE (FROM ABOVE)		WASTE MIN (FROM ABOVE)	
CHECK NUMBER				<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS		LDR NOT REQ'D					
INVOICE #		AMOUNT \$		INVOICE #		AMOUNT \$		TOTAL DUE		DO NOT WRITE IN THE AREA BELOW	
PREVIOUS CREDIT CARD NO		CREDIT CARD NO		EXP. DATE		MANIFEST CODE		SEQ #		0033275599	
										0002-2155-24 -6	
CUSTOMER REFERENCE						By		Customer's Authorized Representative			

SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev. 05/04)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>CAL000021160</b>	2 Page 1 of <b>1</b>	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000120812 CEX</b>
5 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>					
Generator's Site Address (if different than mailing address)					
6 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>				U.S. EPA ID Number <b>TXR000050930</b>	
7 Transporter 2 Company Name <b>TRIAD TRANSPORT INC</b>				U.S. EPA ID Number <b>OKD981588791</b>	
8 Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					
Facility's Phone <b>940-483-5200</b>					
9a U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No Type		11 Total Quantity	12 Unit Wt./Vol
9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No Type		11 Total Quantity	12 Unit Wt./Vol
NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		001 DM		00050	P NONE 352 OUTS 1091
NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)		001 DM		00250	P NONE 352 OUTS 1091
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID)		X DM		X	P NONE 115 OUTS 1191
UN3264 PG III (ERG154)		X		X	X
100 Waste paint Related Material		001 DM		00050	Do 1 Do 2 Do 3
DUNAB3 PG III (ERG154)		001 DM		00050	Do 7 Do 8 006
14 Special Handling Instructions and Additional Information <b>SK TRCK#107935524 0002215524</b>					
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true					
Generator's/Officer's Printed/Typed Name <b>Arthur R. Lina</b>					
Signature <i>Arthur R. Lina</i>					
Month Day Year <b>11/1/78</b>					
16 International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
17 Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>John W. Mitchell</b>					
Signature <i>John W. Mitchell</i>					
Month Day Year <b>11/1/78</b>					
Transporter 2 Printed/Typed Name <b>DWAYNE MITCHELL</b>					
Signature <i>Dwayne Mitchell</i>					
Month Day Year <b>11/1/78</b>					
18 Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number					
18b Alternate Facility (or Generator) U.S. EPA ID Number					
Facility's Phone					
18c Signature of Alternate Facility (or Generator) <b>DICE 01188</b> Month Day Year					
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1 1141 2 1141 3 1141 4 H061					
20 Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a					
Printed/Typed Name <b>J. B. Barta</b>					
Signature <i>J. B. Barta</i>					
Month Day Year <b>11/1/78</b>					



Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>CAL000021160</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>000120812 CEX</b>		
5. Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>					Generator's Site Address (if different than mailing address)		
6. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>					U.S. EPA ID Number <b>TXR000050930</b>		
7. Transporter 2 Company Name					U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>					U.S. EPA ID Number <b>TXD077603371</b>		
Facility's Phone <b>940-483-5200</b>							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		<b>NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)</b>	<b>DM</b>			<b>P</b>	<b>NONE 352 OUTS 1891</b>
		<b>NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)</b>	<b>DM</b>			<b>P</b>	<b>NONE 352 OUTS 1891</b>
		<b>CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID) UN3264 PG III (ERG#154)</b>	<b>DM</b>			<b>P</b>	<b>NONE 185 OUTS 1191</b>
14. Special Handling Instructions and Additional Information <b>SK TRCK#107935524 0002215524</b>							
<b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b>							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name				Signature		Month Day Year <b>11/11/96</b>	
TRANSPORTER INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:						
	17. Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name		Signature		Month Day Year <b>11/11/96</b>		
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name		Signature		Month Day Year <b>11/11/96</b>		
	18. Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
18b. Alternate Facility (or Generator)					Manifest Reference Number		
Facility's Phone					U.S. EPA ID Number		
18c. Signature of Alternate Facility (or Generator)					Month Day Year		
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1		2		3		4	
<b>DICE 01189</b>							
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name				Signature		Month Day Year	

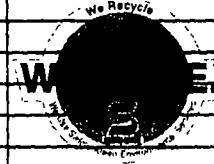


DUNS NO. 0651 FED. ID NO. 380080019  
CUSTOMER  
FOR SERVICE CALL BRANCH MANAGER DOC. EXP  
626-575-4685 JOHNNY JIMENEZ 01/13/07 06-46 23 0033054926  
CREDIT CODE PREVIOUS BALANCE  
E 913.17 BAL OVER 30 DAYS  
BUSINESS TYPE CHAIN OUTER COUNTY SVC. P/C PROD P/C  
09 1091 NO 2288 2226  
LOCATION TAX EXEMPTION NO.  
708806

CUSTOMER NO. 0002-2155-24  
AIR LIQUIDE O5C  
8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

SERVICE DATE SALES REP NO CUSTOMER P.O. NUMBER CUSTOMER PHONE # TAX CODE HANDLING CODE ASSOC CODE SERVICE TAX C.O.M.S. TAX PRODUCT TAX  
01-17-06 0333 562-945-1383 05-095-8001 PW .0825 .0825

DEPT	SERVICE/PRODUCT	SURVEY NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIALS)	CHANGE BOM DATE (YY MM)	INV CODE	PROMO NO.	RELEASE NO.	MSDS GIVEN
1	00100009		845002	1	10.85	0.00	10.85	0.00			0						
2	0088888	03435155	259.0000	1	131	-	131				8						
3	0088888	03435148	511.0000								12						
4	0088888	0081761	875080	1	328	-	328										
5	0088888	016484	8333E	2	325	-	325										
6	0088888		8333E	1	64	508	6728										
7	0088888		3304	1	74	64	80										



TOTAL-SERVICE/PRODUCTS 932 1137  
USEPA TRANSPORTER ID TXR000050930 CAL000021160  
CHECK APPROPRIATE BOXES MACHINE CONDITION & CLEANLINESS LAMP ASSEMBLY CONDITION  
GOOD POOR YES NO  
DECALS IN PLACE AND LEGIBLE FUSIBLE LINK INSTALLED EMERGENCY CLOSING OF LID UNOBSTRUCTED  
MACHINE PROPERLY GROUNDED LOCAL PHONE NO. STICKER APPLIED TO MACHINE SPENT SOLVENT MEETS ACCEPTANCE CRITERIA  
YES NO YES NO

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)  
12. CONTAINERS NO. TYPE 13. TOTAL QUANTITY 14. UNIT WT/VOL SK DOT NUMBER 5163055  
CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES  
0 TO 220 LBS/MONTH INITIALS  
220 LBS TO 2,200 LBS/MONTH INITIALS  
GREATER THAN 2,200 LBS/MONTH INITIALS

DESIGNATED FACILITY NAME AND ADDRESS  
DICE 01190  
I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS  
USA EPA ID NO. STATE ID NO.

CASH CHECK NUMBER INVOICE # AMOUNT \$ INVOICE # AMOUNT \$  
APPLY PAYMENT TO: TODAY'S SERVICE/SALE PREVIOUS BALANCE AS FOLLOWS  
PREVIOUS CREDIT ADD NO  
CREDIT CARD NO  
CUSTOMER REFERENCE

LDR MESSAGE LDR NOT REQ'D  
MANIFEST CODE SEQ # 1-B  
IN THE PRESENCE OF  
BY

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT  
PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS.  
Print Customer Name  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)  
WASTE MIN. (FROM ABOVE)  
TOTAL DUE  
DO NOT WRITE IN THE AREA BELOW  
0033054926  
0002-2155-24 -6

SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev. 05/04)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number <b>0000021160</b>	2 Page 1 of 3	3 Emergency Response Phone <b>1-800-468-1760</b>	4. Manifest Tracking Number <b>001048044 JJK</b>
5a Generator's Mailing Address <b>8832 DICE ROAD SANTA FE SPRINGS CA 90670 562-945-1383</b>			5b Generator's Site Address (if different than mailing address)		
6 Generator's Name <b>SAFETY-RULEN SYSTEMS, INC</b>			U.S. EPA ID Number <b>TXR000050930</b>		
7 Transporter 2 Company Name			U.S. EPA ID Number		
8 Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALEMEDA STREET COMPTON CA 90222 310-537-7100</b>			U.S. EPA ID Number <b>CAT080013352</b>		
Facility's Phone:					
GENERATOR	9a HM	9b US DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity
		<b>NON-RCRA HAZARDOUS WASTE, LIQUID (OIL, WATER, SLUDGE)</b>	<b>01</b>	<b>TT</b>	<b>200</b>
	2.	<b>THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE DeMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED. OUR EPA NUMBER IS CAT080013352.</b>			
	3.				
	4.				
				12. Unit Wt./Vol.	13. Waste Codes
				<b>G</b>	<b>NONE 222</b>
14 Special Handling Instructions and Additional Information <b>SK TRUCK#107686909 0002215524</b> <b>PO# 750175293</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY</b>					
15 GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true					
Generator's/Offor's Printed/Typed Name <b>Arta MACIAS</b>			Signature <i>Arta Macias</i>		Month Day Year <b>11 7 06</b>
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.		
	Transporter signature (for exports only):				
	17 Transporter Acknowledgment of Receipt of Materials				
	Transporter 1 Printed/Typed Name <b>Chuck Kewitch</b>		Signature <i>Chuck Kewitch</i>		Month Day Year <b>11 7 06</b>
	Transporter 2 Printed/Typed Name		Signature		Month Day Year
DESIGNATED FACILITY	18 Discrepancy <b>458</b>				
	18a Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection				
	Manifest Reference Number:				
	18b Alternate Facility (or Generator)			U.S. EPA ID Number	
	Facility's Phone:				
	18c Signature of Alternate Facility (or Generator)				Month Day Year
19 Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
	1 <b>14135</b>		2		3 <b>DICE 01191</b>
20 Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a.					
	Printed/Typed Name <b>SOPHIA P. SVA</b>		Signature <i>Sophia P. SVA</i>		Month Day Year <b>11 10 06</b>



# Certificate of Treatment/Recycling

ISSUED TO

AIR LIQUID AMERICA

FOR

MANIFEST NUMBER 001048044JJK DATE RECEIVED 11/8/2006

The aqueous waste received on the above manifest will be treated to standards mandated by the FEDERAL CLEAN WATER ACT and to effluent requirements established by the Sanitation Districts of Los Angeles County. Waste treatment and recycling is performed under permits granted to DeMENNO/KERDOON, a California Corporation, by the California Department of Toxic Control (DTSC), in coordination with the Environmental Protection Agency, in accordance with the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, together with applicable federal and state regulations including but not limited to waste discharge requirements established by the Sanitation Districts of Los Angeles County.

When the above described waste material is accepted by DeMENNO/KERDOON and treated/recycled and the aqueous phase discharged for further treatment by the Sanitation Districts, the certificate holder's responsibility for the waste material is eliminated under both RCRA and Proposition 65. Upon request, DeMENNO/KERDOON will issue this certificate that all waste material has been handled in accordance with applicable permits and the certificate holder's liability has been terminated.

DeMENNO/KERDOON

"Compliance Through Recycling"

11/20/2006

By:

  
Cyrus Pourhassanian  
Laboratory Manager

Date:

2000 North Alameda Street ☐ Compton ☐ California ☐ 90222  
Telephone (310) 537-7100 ☐ Facsimile (310) 639-2946

DICE 01193



3400 Legacy Drive, Cluster II, B3 800-869-5740  
Plano, Texas 75024 www.safety-kleen.com



DUNS NO 05-397-8551 FED ID NO 75-2178928

CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	DATE RECEIVED
JOHNNY JIMENEZ		DOC EXP 11/04/06	06-36	30	0032540981
			CREDIT CODE	PREVIOUS BALANCE	BAL OVER 60 DAYS
			E	27.85	
BUSINESS TYPE	CHAIN	OUTER COUNTY	SVC P/C	PROD P/C	
09	1091	NO	713	226	
LOCATION			TAX EXEMPTION NUMBER		

0002-2155-24 -6  
AIR LIQUIDE O5C  
8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

B  
I  
L  
L

SALES REP NO.	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S TAX	PRODUCT TAX
432039		562-945-1383	05-095-8001					0825

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	UNIT PRICE	QUANTITY	CHARGE	SALES TAX	TOTAL CHARGE	CHLORINE TEST RESULTS		SK DOT NUMBER	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIALS)	CHANGE SCH DATE (Y WW)	PROMO NO	RELEASE NO.
01	00009			1	10.85	0.00	10.85	<input type="checkbox"/>	<input type="checkbox"/>		0					
01	66667		1.0000	200	200		200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7	3287	52				
01	66677		<del>2.0500</del>					<input type="checkbox"/>	<input type="checkbox"/>	3287	52					
	10903			1	225.00		225.00	<input type="checkbox"/>	<input type="checkbox"/>							

TOTAL-SERVICE/PRODUCTS

435.85

TANK CAPACITY

TRANSPORTER

DATE

11/21/06

GENERATOR STATUS: CHECK ONLY ONE BOX BELOW

GENERATOR HAZARDOUS WASTE CLASSIFICATION	VEHICLE FLUIDS ONLY	OTHER NON-VEHICLE FLUIDS	1 NO PREQUAL REQUIRED, NO HALOGEN TEST
CESQG	<input type="checkbox"/> 1	<input type="checkbox"/> 3	2 NO PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP
SQG/LQG	<input type="checkbox"/> 2	<input type="checkbox"/> 4	3 PREQUAL REQUIRED, NO HALOGEN TEST
			4 PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP

MANIFEST NO.

USEPA TRANSPORTER ID NO.

PRINT NAME

DATE

SIGNATURE

0010480440

TXR000050930

GENERATOR USEPA ID NO.

GENERATOR STATE ID NO.

FACILITY

DATE

SIGNATURE

CA000021160

PRINT NAME

DATE

SIGNATURE

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)

NON-RCRA HAZARDOUS WASTE, LIQUID  
OIL, WATER, SLUDGE)

DICE 01194

12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
01	TT	200	G 3287



INTERMEDIATE FACILITY NAME AND ADDRESS

DEMENNO / KERDOON

2000 NORTH ALEMEDA STREET

COMPTON

CA 90222

USA EPA ID NO.

CAT080013352

STATE ID NO.

CAT080013352

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE
		<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE #
		AMOUNT \$
PREVIOUS CREDIT CARD NO.		
CREDIT CARD NO.		EXP. DATE
CUSTOMER REFERENCE INFORMATION		

MANIFEST CODE	SEQ #
CA	3 D

CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION.

Customer certifies that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Environmental Protection Agency and the U.S. Department of Transportation.

ADDITIONAL TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS DOCUMENT ARE INCORPORATED HERewith MADE A PART HEREOF.

Print Name: Anna Macias

Signature: Anna Macias

GENERATOR/SHIPPER DESIGNATED REPRESENTATIVE SIGNATURE

TOTAL DUE	435.85
DO NOT WRITE IN THE AREA BELOW	
0032540981	
0002-2155-24 -6	

OIL RECOVERY SERVICE/  
SALES ACKNOWLEDGMENT

EPA EPCRA 9001 9002 9003 9004 9005 9006 9007 9008 9009 9010 9011 9012 9013 9014 9015 9016 9017 9018 9019 9020 9021 9022 9023 9024 9025 9026 9027 9028 9029 9030 9031 9032 9033 9034 9035 9036 9037 9038 9039 9040 9041 9042 9043 9044 9045 9046 9047 9048 9049 9050 9051 9052 9053 9054 9055 9056 9057 9058 9059 9060 9061 9062 9063 9064 9065 9066 9067 9068 9069 9070 9071 9072 9073 9074 9075 9076 9077 9078 9079 9080 9081 9082 9083 9084 9085 9086 9087 9088 9089 9090 9091 9092 9093 9094 9095 9096 9097 9098 9099 9100 9101 9102 9103 9104 9105 9106 9107 9108 9109 9110 9111 9112 9113 9114 9115 9116 9117 9118 9119 9120 9121 9122 9123 9124 9125 9126 9127 9128 9129 9130 9131 9132 9133 9134 9135 9136 9137 9138 9139 9140 9141 9142 9143 9144 9145 9146 9147 9148 9149 9150 9151 9152 9153 9154 9155 9156 9157 9158 9159 9160 9161 9162 9163 9164 9165 9166 9167 9168 9169 9170 9171 9172 9173 9174 9175 9176 9177 9178 9179 9180 9181 9182 9183 9184 9185 9186 9187 9188 9189 9190 9191 9192 9193 9194 9195 9196 9197 9198 9199 9200 9201 9202 9203 9204 9205 9206 9207 9208 9209 9210 9211 9212 9213 9214 9215 9216 9217 9218 9219 9220 9221 9222 9223 9224 9225 9226 9227 9228 9229 9230 9231 9232 9233 9234 9235 9236 9237 9238 9239 9240 9241 9242 9243 9244 9245 9246 9247 9248 9249 9250 9251 9252 9253 9254 9255 9256 9257 9258 9259 9260 9261 9262 9263 9264 9265 9266 9267 9268 9269 9270 9271 9272 9273 9274 9275 9276 9277 9278 9279 9280 9281 9282 9283 9284 9285 9286 9287 9288 9289 9290 9291 9292 9293 9294 9295 9296 9297 9298 9299 9300 9301 9302 9303 9304 9305 9306 9307 9308 9309 9310 9311 9312 9313 9314 9315 9316 9317 9318 9319 9320 9321 9322 9323 9324 9325 9326 9327 9328 9329 9330 9331 9332 9333 9334 9335 9336 9337 9338 9339 9340 9341 9342 9343 9344 9345 9346 9347 9348 9349 9350 9351 9352 9353 9354 9355 9356 9357 9358 9359 9360 9361 9362 9363 9364 9365 9366 9367 9368 9369 9370 9371 9372 9373 9374 9375 9376 9377 9378 9379 9380 9381 9382 9383 9384 9385 9386 9387 9388 9389 9390 9391 9392 9393 9394 9395 9396 9397 9398 9399 9400 9401 9402 9403 9404 9405 9406 9407 9408 9409 9410 9411 9412 9413 9414 9415 9416 9417 9418 9419 9420 9421 9422 9423 9424 9425 9426 9427 9428 9429 9430 9431 9432 9433 9434 9435 9436 9437 9438 9439 9440 9441 9442 9443 9444 9445 9446 9447 9448 9449 9450 9451 9452 9453 9454 9455 9456 9457 9458 9459 9460 9461 9462 9463 9464 9465 9466 9467 9468 9469 9470 9471 9472 9473 9474 9475 9476 9477 9478 9479 9480 9481 9482 9483 9484 9485 9486 9487 9488 9489 9490 9491 9492 9493 9494 9495 9496 9497 9498 9499 9500 9501 9502 9503 9504 9505 9506 9507 9508 9509 9510 9511 9512 9513 9514 9515 9516 9517 9518 9519 9520 9521 9522 9523 9524 9525 9526 9527 9528 9529 9530 9531 9532 9533 9534 9535 9536 9537 9538 9539 9540 9541 9542 9543 9544 9545 9546 9547 9548 9549 9550 9551 9552 9553 9554 9555 9556 9557 9558 9559 9560 9561 9562 9563 9564 9565 9566 9567 9568 9569 9570 9571 9572 9573 9574 9575 9576 9577 9578 9579 9580 9581 9582 9583 9584 9585 9586 9587 9588 9589 9590 9591 9592 9593 9594 9595 9596 9597 9598 9599 9600 9601 9602 9603 9604 9605 9606 9607 9608 9609 9610 9611 9612 9613 9614 9615 9616 9617 9618 9619 9620 9621 9622 9623 9624 9625 9626 9627 9628 9629 9630 9631 9632 9633 9634 9635 9636 9637 9638 9639 9640 9641 9642 9643 9644 9645 9646 9647 9648 9649 9650 9651 9652 9653 9654 9655 9656 9657 9658 9659 9660 9661 9662 9663 9664 9665 9666 9667 9668 9669 9670 9671 9672 9673 9674 9675 9676 9677 9678 9679 9680 9681 9682 9683 9684 9685 9686 9687 9688 9689 9690 9691 9692 9693 9694 9695 9696 9697 9698 9699 9700 9701 9702 9703 9704 9705 9706 9707 9708 9709 9710 9711 9712 9713 9714 9715 9716 9717 9718 9719 9720 9721 9722 9723 9724 9725 9726 9727 9728 9729 9730 9731 9732 9733 9734 9735 9736 9737 9738 9739 9740 9741 9742 9743 9744 9745 9746 9747 9748 9749 9750 9751 9752 9753 9754 9755 9756 9757 9758 9759 9760 9761 9762 9763 9764 9765 9766 9767 9768 9769 9770 9771 9772 9773 9774 9775 9776 9777 9778 9779 9780 9781 9782 9783 9784 9785 9786 9787 9788 9789 9790 9791 9792 9793 9794 9795 9796 9797 9798 9799 9800 9801 9802 9803 9804 9805 9806 9807 9808 9809 9810 9811 9812 9813 9814 9815 9816 9817 981

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator ID Number CAL000021160	2 Page 1 of 1	3 Emergency Response Phone 1 800-458-1760	4. Manifest Tracking Number <b>000687849 JJK</b>
5 Generator's Name and Mailing Address AIR LIQUIDE GSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 Generator's Phone 562-941-1383					
6 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC.				US EPA ID Number TXR000050930	
7. Transporter 2 Company Name TRIAD TRANSPORT INC				US EPA ID Number OKD981588791	
8. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208 Facility's Phone 940 181-5200				US EPA ID Number 000618 TXD077603371	
GENERATOR	9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No Type		11 Total Quantity
		1. HAZARDOUS WASTE SOLID, U.S. (ARSENIC, MERCURY) & HAZARDOUS (POT) (ERG#171)		DM	P
		2. WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE) & UN3266 PG II (ERG#154)		DM	P
		3. NON CORA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)		DM	P
		4. NON CORA HAZARDOUS WASTE SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM	P
13. Waste Codes 1. D006 D004 352 2. D002 122 OUTS 1108 3. NONE 352 OUTS 4091 4. NONE 352 OUTS 4891					
14 Special Handling Instructions and Additional Information SK TRCK#10783356 0002215524 SK AUTH D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81081, 91721, 86750					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name			Signature		Month Day Year 1/10/06
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:				
	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Signature Month Day Year Transporter 2 Printed/Typed Name Signature Month Day Year				
DESIGNATED FACILITY	18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number 18b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone 18c. Signature of Alternate Facility (or Generator) Month Day Year				
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1 2 3 4				
	20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a Printed/Typed Name Signature Month Day Year				



<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 1-800-468-1760	4. Manifest Tracking Number <b>001048459 JJK</b>	
5. Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>			Generator's Site Address (if different than mailing address)			
Generator's Phone <b>562-945-1383</b>						
6. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>			U.S. EPA ID Number <b>TXR000050930</b>			
7. Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>			U.S. EPA ID Number <b>OKD981588791</b>			
8. Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>			U.S. EPA ID Number <b>TXD077603371</b>			
Facility's Phone <b>940-483-5200</b>						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit WL/Vol	13. Waste Codes
X	<del>HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC, MERCURY), 9, HAZ077, PGIII (ERG#171)</del>		DM		P	DO09 DO04 352
X	<del>HAZARDOUS CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE) 8 UN1266 PG II (ERG#154)</del>		DM		P	DO02 122 OUTS 110H
	3. NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P	NONE 352 OUTS 4091
	4. NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	01	DM	150	P	NONE 352 OUTS 4091
14. Special Handling Instructions and Additional Information <b>SK TRUCK#107721192 0002215524</b>						
<b>SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b>						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offor's Printed/Typed Name <i>Arturo R Luna</i>		Signature <i>Arturo R Luna</i>		Month Day Year <b>09 15 06</b>		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: <u>1</u> Date leaving U.S.:						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name <i>Javier Avila</i>		Signature <i>Javier Avila</i>		Month Day Year <b>09 15 06</b>		
Transporter 2 Printed/Typed Name <i>JOHN CLARK</i>		Signature <i>John Clark</i>		Month Day Year <b>09 20 06</b>		
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number						
18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone						
18c. Signature of Alternate Facility (or Generator) <b>DICE 01197</b> Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. 2. 3. 4. <b>HL1</b>						
20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a.						
Printed/Typed Name <i>Arturo R Luna</i>		Signature <i>Arturo R Luna</i>		Month Day Year <b>09 25 06</b>		

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 1-800-468-1760	4. Manifest Tracking Number 001048459 JJK			
5. Generator's Name and Mailing Address AIR LIQUIDE OSC 8632 DICE ROAD SANTA FE SPRINGS Generator's Phone: 562-945-1383		Generator's Site Address (if different than mailing address) CA 90670						
6. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		U.S. EPA ID Number TXR000050930						
7. Transporter 2 Company Name TRIAD TRANSPORT INC.		U.S. EPA ID Number OKD981588791						
8. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, 940-483-5200		U.S. EPA ID Number TX 76208 TXD077603371						
Facility's Phone:								
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol	13. Waste Codes	
	X	1. HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC MERCURY)-9, NA3077, PGIII (ERG#171)		DM		P	D009 D004 352	
	X	2. WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE)-8 UN3266 PG II (ERG#154)		DM		P	D002 122 OUTS 110H	
		3. NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)		DM		P	NONE 352 OUTS 489I	
		4. NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)		DM		P	NONE 352 OUTS 489I	
14. Special Handling Instructions and Additional Information SK TRCK#107721192 0002215524								
SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 61681, 82739, 86256								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offeror's Printed/Typed Name		Signature			Month Day Year			
TRANSPORTER INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: _____ Date leaving U.S.: _____					
	Transporter signature (for exports only):							
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials							
	Transporter 1 Printed/Typed Name	Signature			Month Day Year			
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name		Signature			Month Day Year		
	18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection		Manifest Reference Number						
18b. Alternate Facility (or Generator)		U.S. EPA ID Number						
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)		Signature			Month Day Year			
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1		2		3		4		
						DICE 01198		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name		Signature			Month Day Year			

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 1-800-468-1760	4. Manifest Tracking Number <b>001048459 JJK</b>	
5. Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>		Generator's Site Address (if different than mailing address)				
6. Generator's Phone: <b>562-945-1383</b>						
6. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>		U.S. EPA ID Number <b>TXE000050930</b>				
7. Transporter 2 Company Name <b>TRIAD TRANSPORT INC.</b>		U.S. EPA ID Number <b>OKD981558791</b>				
8. Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208</b>		U.S. EPA ID Number <b>TXD077603371</b>				
Facility's Phone: <b>940-483-5200</b>						
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	X	1. HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC, MERCURY) - 9, NA3077, PGIII (ERG#171)	DM		P	D009 D004 352
	X	2. WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE) 8 UN3266 PG II (ERG#154)	DM		P	D002 122 OUTS 110H
		3. NON RCRA HAZARDOUS WASTE, SOLID (WASTE OIL AND ABSORBENT MIXTURE)	DM		P	NONE 352 OUTS 4891
		4. NON RCRA HAZARDOUS WASTE, SOLID (PAINT BOOTH FILTERS)	DM		P	NONE 352 OUTS 4091
14. Special Handling Instructions and Additional Information <b>SK TRCK#107721192 0002215524</b>						
SK AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name		Signature		Month Day Year		
TRANSPORTER INTL	18. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: _____ Date leaving U.S.: _____			
	17. Transporter Acknowledgment of Receipt of Materials					
	Transporter 1 Printed/Typed Name		Signature		Month Day Year	
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name		Signature		Month Day Year	
	18. Discrepancy					
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	Manifest Reference Number: _____					
18b. Alternate Facility (or Generator)		U.S. EPA ID Number				
Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator)		Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1		2		3		4
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a						
Printed/Typed Name		Signature		Month Day Year		



5400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-669-5740  
www.safety-kleen.com



DUNS NO 05-397-6551

FED ID NO 396090019

CUSTOMER

CUSTOMER NO.

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	JOHNNY JIMENEZ	11/11/06	06-37	23	0032641249

0 0 0 2 - 2 1 5 5 - 2 4

AIR LIQUIDE OSC

8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

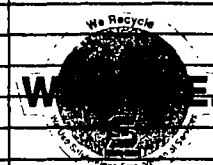
BILL

CREDIT CODE	PREVIOUS BALANCE	BAL OVER 80 DAYS		
E	27.85	27.85		
BUSINESS TYPE	CHAIN	OUTER COUNTRY	SVC. P/C	PROD. P/C
09	1091	NO	2288	2226
LOCATION		TAX EXEMPTION NO		
708806				

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
			562-945-1383	05-095-8001		PW	.0825		.0825

DEPT	SERVICE/PRODUCT	SOLVENT NUMBER	REMARKS/UNIT PRICE	QUAN.	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIAL)	CHANGE SCH. DATE (YY WW)	INV CODE	PROMO NO.	RELEASE NO.	MSD GIVE
1	001000009			1	10.85	0.00	10.85	0.00			0						
2	0088888	02081761	316.0000		316	-	316				52						
3	0088888	02113626	432.5000								52						
4	821			1	40.00	3.30	43.30										
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

DICE 01200



TOTAL-SERVICE/PRODUCTS	356	3.30	359.30	CHECK APPROPRIATE BOXES	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
				MACHINE CONDITION & CLEANLINESS	<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO STICKER AFFIXED TO MACHINE	<input type="checkbox"/>	<input type="checkbox"/>
				LAMP ASSEMBLY CONDITION	<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	9163059	I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
FRS						0 TO 220 LBS./MONTH
						220 LBS. TO 2,200 LBS./MONTH
						GREATER THAN 2,200 LBS./MONTH

DESIGNATED FACILITY NAME AND ADDRESS	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS	USA EPA ID NO.	STATE ID NO.

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO:
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE
		<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE #
PREVIOUS CREDIT CARD NO		

001098459
LDR MESSAGE
LDR NOT REQ'D
MANIFEST CODE
SEQ #
5-D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS.

"This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

Print Customer Name: *Aturok Lina*

By: *Johnny Jimenez*  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN. (FROM ABOVE)	
TOTAL DUE	359.30
DO NOT WRITE IN THE AREA BELOW	
0032641249	
0002-2155-24 -6	

SERVICE AND SALES ACKNOWLEDGMENT

TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY  
P.O. Box 13087  
Austin, Texas 78711-3087



7-088-06

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. CAL000021160		Manifest Document No. 88821	2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address AIR LIQUIDE OSC 8812 DICE ROAD SANTA FE SPRINGS CA 90670					A. State Manifest Document Number 01284871			
4. Generator's Phone (562) 945-1383					B. State Hazardous Waste Site ID Number 0000000000			
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC					6. US EPA ID Number TXR000050930			
7. Transporter 2 Company Name TRIAD TRANSPORT INC					8. US EPA ID Number 10K0001588791			
9. Designated Facility Name and Site Address 000618 SAFETY-KLEEN SYSTEMS, INC 1722 COOPER CREEK ROAD DENTON, TX 76208					10. US EPA ID Number TXR000050930			
11A. 11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)					12. Containers No.		13. Total Quantity	
a. HAZARDOUS WASTE SOLID. N.O.S. (ARSENIC, MERCURY) 9. NA3077. PSIII (ERG#171)					DM		P 352	
b. NON RCRA HAZARDOUS WASTE. SOLID					001 DM		00180 P OUTS4091	
c. NON RCRA HAZARDOUS WASTE. LIQUID					DM		P OUTS5191	
d. NON RCRA HAZARDOUS WASTE. SOLID					DM		P 352	
J. Additional Descriptions for Materials Listed Above					K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7397 B: 37797 C: 37802 D: 37797								
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.								
Printed / Typed Name Rafael M. Motta					Signature Rafael M. Motta		Month Day Year 07/09/06	
17. Transporter 1 Acknowledgement of Receipt of Materials					Signature [Signature]		Date 07/25/06	
18. Transporter 2 Acknowledgement of Receipt of Materials					Signature [Signature]		Date 07/25/06	
19. Discrepancy Indication Space					DICE 01201			
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					Date			
Printed / Typed Name C. Crumb					Signature C. Crumb		Month Day Year 08/11/06	



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.				
3. Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670				A. State Hazardous Waste Number 01284871					
4. Generator's Phone (562) 945-1383				B. State Hazardous Waste ID Number 07109					
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC				C. State Hazardous Waste ID Number 000-164-0000					
6. US EPA ID Number TXR000050930									
7. Transporter 2 Company Name									
8. US EPA ID Number									
9. Designated Facility Name and Site Address 000618 SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208				10. US EPA ID Number TXD077603371					
11A. HM				11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
a				HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC MERCURY) 9. NA3077, PGIII ERG#171		DM		P	351
b				NON RCRA HAZARDOUS WASTE, SOLID		DM		P	OUTS400
c				NON RCRA HAZARDOUS WASTE, LIQUID		DM		P	OUTS510
d				NON RCRA HAZARDOUS WASTE, SOLID		DM		P	352
J. Additional Descriptions for Materials Listed Above IA) D009-D004 IB) NONE 351 161 NONE 151 151 NONE				K. Handling Codes for Wastes Listed Above					
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7997 B: 37797 C: 37602 D: 37797									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed / Typed Name				Signature			Month Day Year		
17. Transporter 1 Acknowledgement of Receipt of Materials				Date					
Printed / Typed Name				Signature			Month Day Year		
18. Transporter 2 Acknowledgement or Receipt of Materials				Date					
Printed / Typed Name				Signature			Month Day Year		
19. Discrepancy Indication Space DICE 01202									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19									
Printed / Typed Name				Signature			Month Day Year		

Plano, Texas 75024

000-000-5/40

**www.safety-kleen.com**



**DUNS NO 05-397-6551**

FED ID NO 396090019

## CONCLUSION

FOR SERVICE CALL		BRANCH MANAGER		DOC. EXP.		SCHEDULED SERVICE WEEK		SCHEDULED TERRITORY		REFERENCE NUMBER					
626-575-4685		JOHNNY JIMENEZ				06				M003590976					
						CREDIT CODE		PREVIOUS BALANCE		BAL. OVER 60 DAYS					
						BUSINESS TYPE		CHAIN		OUTER COUNTRY		SVC P/C		PROD P/C	
						LOCATION		TAX EXEMPTION NO.							
						708806									

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M S. TAX	PRODUCT TAX
7/25/26	0353								

[illegible]

TOTAL-SERVICE/PRODUCTS		38.0	528		CHECK APPROPRIATE BOXES	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO	AGENT
					MACHINE CONDITION & CLEANLINESS	<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO. STICKER AFFIXED TO MACHINE	<input type="checkbox"/>	<input type="checkbox"/>	
					LAMP ASSEMBLY CONDITION	<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>	
UNIT TYPE/POWERED T.D. NO.	USE-A-TANK/GENERATOR T.D. NO.	GENERATOR/USE-A-TANK NO.		GENERATION STATE ID NO.										
TXR000050930														

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12. CONTAINERS NO.	13. TOTAL QUANTITY	14. UNIT WT/VOL	SK DOT NUMBER	5163055	1. CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (#039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)				839		0 TO 220 LBS./MONTH INITIALS <u>      </u>
USED CLEANING COMPOUNDS, N.O.I.B.N. (NOT USDOT OR USEPA REGULATED)AQUEOUS PM SOLUTION (8.3#/G)				941		220 LBS TO 2,200 LBS./MONTH INITIALS <u>      </u>
USED CLEANING COMPOUNDS, N.O.I.B.N. (NOT USDOT OR USEPA REGULATED) AQ IC(8.4#GAL)				3311		GREATER THAN 2,200 LBS./MONTH INITIALS <u>      </u>

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS.	USA EPA ID NO.
			STATE ID NO.

CASH	<input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO.
CHECK NUMBER			<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
* INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$
PREVIOUS CREDIT CARD NO →			

MANIFEST NO.	
5-01089611	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	58 D

WASTE MATERIALS

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

"This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

*Rachel Mott*

Print Customer Name

*Rachel Mott*

By \_\_\_\_\_

Customer's Authorized Representative

THIS AGREEMENT CONTINUES ON THE REVERSE SIDE

TOTAL CHARGE (FROM ABOVE)	38
WASTE MIN. (FROM ABOVE)	
TOTAL DUE	
DO NOT WRITE IN THE AREA BELOW	
M003590976	
029089	

**SERVICE AND SALES ACKNOWLEDGMENT**  
**PART 1367 (Rev. 05/04)**

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA, CALL 1-800-852-7550

200124

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator's US EPA ID No <b>CA000021160</b>		Manifest Document No <b>20876</b>		2 Page 1 of 1		Information in the shaded areas is not required by Federal law							
3 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>						A. State Manifest Document Number <b>25026724</b>									
4 Generator's Phone <b>562 945-1383</b>						B. State Generator's ID									
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC.</b>						C. State Transporter's ID (Reserved)									
6 US EPA ID Number <b>TYR000050910</b>						D. State Transporter's ID (Reserved)									
7 Transporter 2 Company Name						E. State Transporter's ID (Reserved)									
8 US EPA ID Number						F. Transporter's Phone <b>800 669-5840</b>									
9 Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALEMEDA STREET COMPTON CA 90222</b>						10 US EPA ID Number <b>CAT080013352</b>									
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers No Type		13 Total Quantity		14 Unit Wt/Vol		15 Waste Number			
a <b>NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)</b> b <b>THIS WASTE STREAM IS BEING SUPPLIED FOR RECYCLING</b> c <b>DEMENNO/KERDOON, 2000 NORTH ALEMEDA STREET, COMPTON, CALIFORNIA. THIS WASTE STREAM IS BEING SUPPLIED FOR RECYCLING. THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED. OUR EPA NUMBER IS CAT080013352.</b> d						91		TT		00220		G		State <b>222</b> EPA/Other	
														State EPA/Other	
														State EPA/Other	
														State EPA/Other	
J. Additional Descriptions for Materials Listed Above						K. Additional Descriptions for Wastes Listed Above									
<b>PO # 750153290</b> <b>EMERGENCY RESP#800-468-1760 24HR</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIER, AS NECESSARY.</b> <b>A 3287 B C D</b>						a <b>REDI</b> b c d									
15. Special Handling Instructions and Additional Information <b>0624 107425080 0032020876 0002215524 30</b> <b>EMERGENCY RESP#800-468-1760 24HR</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIER, AS NECESSARY.</b> <b>A 3287 B C D</b>															
16 <b>GENERATOR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford															
Printed/Typed Name <b>Arnth MARIAS</b>				Signature <i>[Signature]</i>				Month <b>16</b>		Day <b>14</b>		Year <b>2016</b>			
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <b>Chuck Kewitch</b>				Signature <i>[Signature]</i>				Month <b>16</b>		Day <b>14</b>		Year <b>2016</b>			
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature				Month		Day		Year			
19 Discrepancy Indication Space <b>QUANTITY DISCREPANCY GREATER THAN 10% VARIATION RECONCILED WITH GENERATOR/TRANSPORTER ON 6/20/16 WITH Rita OF SIK RECEIVED 147 GALLONS</b>															
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name <b>SOPHAL C. SVAY</b>				Signature <i>[Signature]</i>				Month <b>06</b>		Day <b>14</b>		Year <b>2016</b>			

DO NOT WRITE BELOW THIS LINE.

Yellow

TSDF SENDS THIS COPY TO GENERATOR WITHIN 30 DAYS  
(Generators who submit hazardous waste for transport out-of-state, produce completed copy of this copy and send to DTSC within 30 days)



IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator's US EPA ID No <b>CA1009021160</b>		Manifest Document No <b>20876</b>		2 Page 1 of 1		Information in the shaded areas is not required by Federal law									
3 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 Generator's Phone 562 945-1383</b>						A. State Manifest Document Number <b>25026724</b>											
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS INC.</b>						B. State Generator's ID											
6 US EPA ID Number <b>TXR000050930</b>						C. State Transporter's ID (Reserved)											
7 Transporter 2 Company Name						D. Transporter's Phone <b>800 669-5840</b>											
8 US EPA ID Number						E. State Transporter's ID (Reserved)											
9 Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALEMEDA STREET COMPTON CA 90222</b>						F. Transporter's Phone											
10 US EPA ID Number <b>CAT080013352</b>						G. State Facility's ID <b>CA1080013352</b>											
H. Facility's Phone <b>310 537-7100</b>																	
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13 Total		14 Unit		1. Waste Number					
						No Type		Quantity		Wt/Vol		State EPA/Other					
a <b>NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)</b>						91 TT		00220 G				222					
b												State EPA/Other					
c												State EPA/Other					
d												State EPA/Other					
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above											
						a 14 b											
						c d											
15 Special Handling Instructions and Additional Information <b>EMERGENCY RESP 800-468-1760 24HR</b>						0624 107425010 0002020876 Q002215524 30											
<b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIER, AS NECESSARY.</b>						AP 3287/B6/00 C D											
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations																	
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford																	
Printed/Typed Name <b>ARTHUR HINCINS</b>				Signature <i>Arthur Hincins</i>				Month <b>6</b>		Day <b>14</b>		Year <b>06</b>					
17 Transporter 1 Acknowledgement of Receipt of Materials				Printed/Typed Name <b>Chuck Kewitch</b>				Signature <i>Chuck Kewitch</i>				Month <b>6</b>		Day <b>14</b>		Year <b>06</b>	
18 Transporter 2 Acknowledgement of Receipt of Materials				Printed/Typed Name				Signature				Month		Day		Year	
19 Discrepancy Indication Space										<b>DICE 01205</b>							
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19																	
Printed/Typed Name				Signature				Month		Day		Year					

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA, CALL 1-800-852-7550

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator's US EPA ID No <b>QAL000021160</b>		Manifest Document No <b>20876</b>		2 Page 1 of 1		Information in the shaded areas is not required by Federal law					
3 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>						A State Manifest Document Number <b>25026724</b>							
4 Generator's Phone <b>562 945-1383</b>						B State Generator's ID							
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS INC.</b>						C State Transporter's ID [Reserved]							
6 US EPA ID Number <b>TXR000050930</b>						D Transporter's Phone <b>800 669-5840</b>							
7 Transporter 2 Company Name						E State Transporter's ID [Reserved]							
8 US EPA ID Number						F Transporter's Phone							
9 Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALEMEDA STREET COMPTON CA 90222</b>						G State Facility's ID <b>CAT080013352</b>							
10 US EPA ID Number <b>050122</b>						H Facility's Phone <b>310 537-7100</b>							
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)						12 Containers No Type		13 Total Quantity		14 Unit Wt/Vol		15 Waste Number State EPA/Other	
a <b>NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)</b>						91 TT		010220		G		222	
												State	
												EPA/Other	
b												State	
c												State	
d												State	
J Additional Descriptions for Materials Listed Above						K Handling Codes for Wastes Listed Above							
						a 14		b					
						c		d					
15 Special Handling Instructions and Additional Information <b>EMERGENCY RESP 800-468-1760 24HR SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIER, AS NECESSARY.</b>						0624 107425080 0032020876 0002215524 30							
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations													
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford													
Printed/Typed Name <b>Anita Macias</b>						Signature <i>Anita Macias</i>		Month <b>6</b>		Day <b>14</b>		Year <b>2016</b>	
17 Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name <b>Chuck Revwitch</b>						Signature <i>Chuck Revwitch</i>		Month <b>6</b>		Day <b>14</b>		Year <b>2016</b>	
18 Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name						Signature		Month		Day		Year	
19 Discrepancy Indication Space													
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19													
Printed/Typed Name						Signature		Month		Day		Year	

DO NOT WRITE BELOW THIS LINE.

# Certificate of Treatment/Recycling

ISSUED TO

AIR LIQUID AMERICA

FOR

MANIFEST NUMBER 25026724

DATE RECEIVED 6/14/2006

The aqueous waste received on the above manifest will be treated to standards mandated by the FEDERAL CLEAN WATER ACT and to effluent requirements established by the Sanitation Districts of Los Angeles County. Waste treatment and recycling is performed under permits granted to DeMENNO/KERDOON, a California Corporation, by the California Department of Toxic Control (DTSC), in coordination with the Environmental Protection Agency, in accordance with the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, together with applicable federal and state regulations including but not limited to waste discharge requirements established by the Sanitation Districts of Los Angeles County.

When the above described waste material is accepted by DeMENNO/KERDOON and treated/recycled and the aqueous phase discharged for further treatment by the Sanitation Districts, the certificate holder's responsibility for the waste material is eliminated under both RCRA and Proposition 65. Upon request, DeMENNO/KERDOON will issue this certificate that all waste material has been handled in accordance with applicable permits and the certificate holder's liability has been terminated.

DeMENNO/KERDOON

"Compliance Through Recycling"

6/26/2006

By: 

Cyrus Pourhassanian  
Laboratory Manager

Date: \_\_\_\_\_

2000 North Alameda Street ☐ Compton ☐ California ☐ 90222  
Telephone (310) 537-7100 ☐ Facsimile (310) 639-2946

DICE 01207



4000 Legacy Drive, Cluster II, B3 800-669-5740  
Plano, Texas 75024 www.safety-kleen.com  
CUSTOMER NO.



DUNS NO. 06-397-6551 FED. ID NO. 75-2178928

CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
JOHNNY JIMENEZ		DOC EXP 08/12/06	06-24	30	0032020876
			CREDIT CODE E	PREVIOUS BALANCE 2003.28	BAL. OVER 60 DAYS
BUSINESS TYPE	CHAIN	OUTER COUNTY	SVC. P/C	PROD P/C	
09	1091	NO	713	226	
LOCATION			TAX EXEMPTION NUMBER		

0002-2155-24 -6  
AIR LIQUIDE OSC  
8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

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SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER			CUSTOMER PHONE #		TAX CODE		HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M S. TAX	PRODUCT TAX					
6/14/06	432039				562-945-1383		05-095-8001						.0825					
DEPT	SERVICE/PRODUCT	SERIAL NUMBER	UNIT PRICE	QUANTITY	CHARGE	SALES TAX	TOTAL CHARGE	CHLORINE TEST RESULTS				SK DOT NUMBER	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIAL)	CHANGE BGN DATE (YY WW)	PROMO NO	RELEASE NO
								HALOGEN TESTER PASS	TESTER FAIL	CHLOR-D-TECT RESULTS (PPM)								
01	100009				10.85	0.00	10.85	<input type="checkbox"/>	<input type="checkbox"/>				0					
01	66667		1.0000	220	220.00		220.00	<input type="checkbox"/>	<input type="checkbox"/>		3287	52						
01	66667		<del>5.0000</del>					<input type="checkbox"/>	<input type="checkbox"/>		3287	52						
	10003			1	223.00		223.00	<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									
								<input type="checkbox"/>	<input type="checkbox"/>									
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								<input type="checkbox"/>	<input type="checkbox"/>									

TOTAL-SERVICE/PRODUCTS

455.83

TANK CAPACITY

TRANSPORTER

DATE 6/14/06

Chuck Kewitch

SIGNATURE

PRINT NAME

SIGNATURE

FACILITY

DATE 1/1

PRINT NAME

SIGNATURE

GENERATOR STATUS: CHECK ONLY ONE BOX BELOW

GENERATOR HAZARDOUS WASTE CLASSIFICATION *	VEHICLE FLUIDS ONLY	OTHER NON-VEHICLE FLUIDS
CESQG	<input type="checkbox"/> 1	<input type="checkbox"/> 3
SQG/LQG	<input type="checkbox"/> 2	<input type="checkbox"/> 4

- 1 NO PREQUAL REQUIRED, NO HALOGEN TEST
  - 2 NO PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP
  - 3 PREQUAL REQUIRED, NO HALOGEN TEST
  - 4 PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP
- \* REFER TO REVERSE SIDE FOR DEFINITIONS

MANIFEST NO. 25026724  
GENERATOR USEPA ID NO. CAL000021160

USEPA TRANSPORTER ID NO. TXR000050930  
GENERATOR STATE ID NO.

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)  
OIL/WATER/SLUDGE, NON-RCRA HAZARDOUS WASTE  
(NOT USDOT REGULATED)

DICE 01208

12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
01	220	G	3287



OIL RECOVERY SERVICE/  
SALES AND/OR RECYCLING

INTERMEDIATE FACILITY NAME AND ADDRESS  
2000 NORTH ALEMEDA STREET  
DEMENNO / KERDOON  
COMPTON CA 90222

USA EPA ID NO.  
STATE ID NO.

CAT080013352  
CAT080013352

PAYMENT SECTION	CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO:
	CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE
			<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
	INVOICE #	AMOUNT \$	INVOICE #
PREVIOUS CREDIT CARD NO.	CREDIT CARD NO.	AMEX VISA MC	EXP. DATE
CUSTOMER REFERENCE INFORMATION			

MANIFEST CODE	SEQ #
CA	1 D

CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION

Customer certifies that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Environmental Protection Agency and the U.S. Department of Transportation.

ADDITIONAL TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS DOCUMENT ARE INCORPORATED HERewith MADE A PART HEREOF.

Print Name X Anita MACIAS

GENERATOR/SHIPPER DESIGNATED REPRESENTATIVE SIGNATURE

TOTAL DUE 455.83

DO NOT WRITE IN THE AREA BELOW

0032020876

0002-2155-24 -6



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 101772	2 Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address AIR LIQUIDE USC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383				A. State Manifest Document Number 801249472		
4. Generator's Phone ( )				B. State Generator ID 00008		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC				C. State Transporter ID 000 0000-5840		
6. US EPA ID Number TXR000050930				D. State Transporter ID 000 0000-5840		
7. Transporter 2 Company Name 1000				E. State Transporter ID 000 0000-5840		
8. US EPA ID Number 10008158879				F. State Transporter ID 000 0000-5840		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208				G. State Facility ID 000 0000-5840		
10. US EPA ID Number TXD077603371				H. State Facility ID 000 0000-5840		
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
a	WASTE OIL AND ABSORBENT MIXTURE (NOT USDOT HAZARDOUS MATERIAL)	001	DM	00220	P	OUTS4691
b	NON-RCRA HAZARDOUS WASTE, LIQUID		DM		P	OUTS1191
c	NON-RCRA HAZARDOUS WASTE, LIQUID		DM		P	OUTS1141
d	NON-RCRA HAZARDOUS WASTE LIQUID (OIL)		DM		P	OUTS2061
J. Additional Descriptions for Materials Listed Above NONE 1891 332 189 NONE 122 16 NONE 122 18				K. Handling Codes for Wastes Listed Above H141		
15 Special Handling Instructions and Additional Information MFST R/T#106976606 0002-2155-24 EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 1033 B: 37802 C: 37802 D: 142051						
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed / Typed Name ARZ Trujillo		Signature 		Month Day Year 06/13/06		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature 		Month Day Year 06/13/06		
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature 		Month Day Year 06/13/06		
19 Discrepancy Indication Space		DICE 01209				
20 Facility Owner or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in item 19						
Printed / Typed Name Hoodgame		Signature 		Month Day Year 06/20/06		



Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No. CAL000021160	Manifest Document No.	2 Page 1 of 1	Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383			A. State Manifest Number 01218472			
4. Generator's Phone ( )		6. US EPA ID Number TXR000050930		C. State Manifest Number 000-000-0000		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		8. US EPA ID Number		E. State Manifest Number 000-000-0000		
7. Transporter 2 Company Name		10. US EPA ID Number TXD077603371		G. State Manifest Number 000-000-0000		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208			H. State Manifest Number 000-000-0000			
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
	a. WASTE OIL AND ABSORBENT MIXTURE (NOT USDOT HAZARDOUS MATERIAL)		DM		P	OUT21001
	b. NON RCRA HAZARDOUS WASTE, LIQUID		DM		P	OUT21101
	c. NON RCRA HAZARDOUS WASTE, LIQUID		DM		P	OUT21141
	d. NON-RCRA HAZARDOUS WASTE LIQUID (OIL)		DM		P	OUT21061
J. A. State Manifest Number 000-000-0000			K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 1033 B: 37802 C: 37803 D: 142051						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed / Typed Name		Signature		Month Day Year		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date		
Printed / Typed Name		Signature		Month Day Year		
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date		
Printed / Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space DICE 01210						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						
Printed / Typed Name		Signature		Date		

## CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	MOBILE NUMBER		
626-575-4685	JOHNNY JIMENEZ		06		M003500838		
			CREDIT CODE	PREVIOUS BALANCE	BAL. OVER 60 DAYS		
			BUSINESS TYPE	CHAIN	OUTER COUNTY	SVC P/C	PROD P/C
			LOCATION		TAX EXEMPTION NO		
			708806				

SERVICE DATE	SALES REP NO.	CUSTOMER P O NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
11-1-02	0333				PW				

DEPT	SERVICE/ PRODUCT	SERIAL NUMBER	REMARKS/ UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS			CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)(INITIAL)	CHANGE SQD DATE (YY MM)	INV CODE	PROMO NO.		MSD GIVE
									CLEAN	SPENT	TOT CONT								
	8088	213626		1	432 <sup>IF</sup>	-	432 <sup>IF</sup>												
	xms569			2	678	10 <sup>2</sup>	138 <sup>IF</sup>												
	10469			1	10 <sup>25</sup>	-	10 <sup>25</sup>												

DICE 01211

A circular logo with the text "We Recycle" at the top and "Waste Management" around the bottom edge. In the center, there is a stylized graphic of a recycling symbol or a similar emblem.

TOTAL-SERVICE/PRODUCTS		571-1012		ST-119		CHECK APPROPRIATE BOXES		GOOD POOR		DECALS IN PLACE AND LEGIBLE		YES NO		MACHINE PROPERLY GROUNDED		YES NO	
								<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>				<input type="checkbox"/> <input type="checkbox"/>	
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11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12 CONTAINERS NO	13 TYPE	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	5163055	1. I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES: 0 TO 220 LBS./MONTH INITIALS 220 LBS. TO 2,200 LBS./MONTH INITIALS GREATER THAN 2,200 LBS./MONTH INITIALS
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)					839		
USED CLEANING COMPOUNDS, N.O.I.B.N. (NON-RCRA HAZARDOUS WASTE LIQUID, NOT USDOT REGULATED)AQUEOUS PW SOLUTION (8.3#/G)					941		
USED CLEANING COMPOUNDS, N.O.I.B.N. (NON-RCRA HAZARDOUS WASTE LIQUID, NOT USDOT REGULATED)AQ IC(8.4#GAL)					3311		

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS.	USA EPA ID NO.
			STATE ID NO.

<b>CASH</b> <input type="checkbox"/>	<b>TOTAL RECEIVED</b>		<b>APPLY PAYMENT TO</b>	
	<b>CHECK NUMBER</b>		<input type="checkbox"/> TODAY'S SERVICE/SALE	
			<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS	
<b>INVOICE #</b>	<b>AMOUNT \$</b>	<b>INVOICE #</b>	<b>AMOUNT \$</b>	
<b>PREVIOUS CREDIT CARD NO.</b>				

Below the form are two rows of boxes for recording information:

- A row of 10 small boxes followed by a larger box containing "RECEIVED".
- A row of 12 small boxes.

MANIFEST NO.	
501249442	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	20 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

\*This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.\*

ARTURO  
Print Customer Name

By [Signature]  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	571.50
WASTE MIN (FROM ABOVE)	
TOTAL DUE	

DO NOT WRITE IN THE AREA BELOW

MO03500838  
432870

THIS AGREEMENT CONTINUES ON THE REVERSE SIDE

**SERVICE AND SALES ACKNOWLEDGMENT**  
**PART 1367 (Rev. 05/04)**



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No CAL000021160	Manifest Document No 67129	2. Page 1 of 1	Information in the shaded areas is not required by Federal law
3. Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383			A. State Manifest Document Number 01284829		
4. Generator's Phone ( )		6. US EPA ID Number TXR000050930			
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		8. US EPA ID Number TXD077603371			
7. Transporter 2 Company Name TMAD Transport & Co		10. US EPA ID Number TXD077603371			
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208					
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
	a. NON REGULATED SOLID		DM		P
	b. NON RCRA HAZARDOUS WASTE, LIQUID		DM		P
	c. CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID) 8 UN3264 PG III (ERG#154)	001	DM	00380	P
	d. NON-RCRA HAZARDOUS WASTE, SOLID (DEBRIS)		DM		P
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 25383 B: 37802 C: 180813 D: 47179					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed / Typed Name Anita Macias		Signature Anita Macias		Month Day Year 08/15/06	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature [Signature]		Date 08/15/06	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature [Signature]		Date 08/15/06	
19. Discrepancy Indication Space DICE 01212					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19					
Printed / Typed Name Bailey		Signature Bailey		Month Day Year 08/22/06	





Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383			A. State Manifest Document Number 01284829		
4. Generator's Phone ( )			B. Manifest Date 01/28/89		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC			6. US EPA ID Number TXR000050930	C. Manifest Date 01/28/89	
7. Transporter 2 Company Name			8. US EPA ID Number	D. Manifest Date 01/28/89	
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208			10. US EPA ID Number TXD077603371	E. Manifest Date 01/28/89	
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a	NON REGULATED SOLID		DM		P
b	NON RCRA HAZARDOUS WASTE, LIQUID		DM		P
c	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID) 8 UN3264 PG III (ERG#154)	201	DM		P
d	NON-RCRA HAZARDOUS WASTE, SOLID (DEBRIS)		DM		P
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 25385 B: 37802 C: 180813 D: 47179			K. Handling Codes for Wastes Listed Above		
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed / Typed Name Anita Moxias		Signature		Month Day Year 01 28 89	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date 01 28 89	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date 01 28 89	
19. Discrepancy Indication Space DICE 01213					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19					
Printed / Typed Name		Signature		Month Day Year	



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 187723	2. Page 1 of 1	Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address AIR LIQUIDE USC 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383				A. State Manifest Document Number S 01249473		
4. Generator's Phone ( )				B. State Generator's ID 00008		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930		C. State Transporter's ID 87109		
7. Transporter 2 Company Name SLT E		8. US EPA ID Number 4TD 921552425		D. Transporter's Phone 800 669-5840		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371		E. State Transporter's ID 89591		
				F. Transporter's Phone 806 26911600		
				G. State Facility ID 65124		
				H. Facility's Phone 940 483-5200		
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)		12. Containers No	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
	a. WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE) 8 UN3266 PG II (ERG#154)		DM		P	OUTS110H
	b. NEW RCRA HAZARDOUS WASTE, LIQUID		001 DM 000860	P		OUTS 1191
	c. NEW RCRA HAZARDOUS WASTE, SOLID		001 DM 000860	P		OUTS 1191
	d.					
J. Additional Descriptions for Materials Listed Above 1A) 0002-122 1B) NEW RCRA 1C) NEW RCRA				K. Handling Codes for Wastes Listed Above P114 P114		
15. Special Handling Instructions and Additional Information MFST R/T#106976607 0002-2155-24 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 21700 B: 2293 C: 32797 D:						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed / Typed Name JUAN BUENFOSTRO		Signature [Signature]		Month Day Year 09/19/06		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature [Signature]		Date 09/19/06		
Printed / Typed Name FRED LUKE		Signature [Signature]		Month Day Year 10/21/06		
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature [Signature]		Date 10/21/06		
Printed / Typed Name FRED LUKE		Signature [Signature]		Month Day Year 10/21/06		
19. Discrepancy Indication Space DICE 01214						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19						
Printed / Typed Name Koster		Signature [Signature]		Month Day Year 11/21/06		



Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 72	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383			A. State Manifest Document Number 01249773			
4. Generator's Phone ( )		6. US EPA ID Number TXR000050930		C. State Manifest Document Number 000-000-0000		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		7. Transporter 2 Company Name		D. State Manifest Document Number		
8. US EPA ID Number		9. Designated Facility Name and Site Address 000618 SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		E. State Manifest Document Number		
10. US EPA ID Number TXD077603371						
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.	
a.	WASTE CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE) 8 UN3266 PG II (ERG#154)		DM	P	00001101	
b.	NEW KERN 12000000 Waste Liquid	001	DM	P	0051191	
c.	NEW KERN 12000000 Waste Solid	001	DM	P	0054091	
d.						
16. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR) IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82759, 86256 SKDOT# A: 21700 B: 25373 C: 37747 D:		17. Generator's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford				
Printed / Typed Name John Lee 0400270		Signature [Signature]		Month Day Year 04/1/96		
17. Transporter 1 Acknowledgement of Receipt of Materials Printed / Typed Name [Signature]		Signature [Signature]		Date Month Day Year 04/1/96		
18. Transporter 2 Acknowledgement or Receipt of Materials Printed / Typed Name		Signature		Date Month Day Year		
19. Discrepancy Indication Space DICE 01215						
20. Facility Owner or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in item 19 Printed / Typed Name Signature Date Month Day Year						



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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 82122	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383		4. Generator's Phone ( )			
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930		7. Transporter 2 Company Name TRIAD	
8. US EPA ID Number 10KD981588791		9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208			
10. US EPA ID Number TXD077603371					
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
X	a. HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC, MERCURY) 9, NA3077, PGIII ERG#171)		DM		P 52
	b. NON RCRA HAZARDOUS WASTE, SOLID	001	DM	00180	P OUTS4091
	c. NON RCRA HAZARDOUS WASTE, LIQUID		DM		P OUTS5191
	d. NON RCRA HAZARDOUS WASTE, SOLID		DM		P 52
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7397 B: 37797 C: 37802 D: 37797					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed / Typed Name Anita MACIAS		Signature Anita Macias		Month Day Year 1/10/06	
17. Transporter 1 Acknowledgment of Receipt of Materials		Signature [Signature]		Month Day Year 04/05/06	
18. Transporter 2 Acknowledgment of Receipt of Materials		Signature [Signature]		Month Day Year 09/10/06	
19. Discrepancy Indication Space DICE 01216					
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed / Typed Name Anderson		Signature Anderson		Month Day Year 1/13/06	

TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY  
P.O. Box 13087  
Austin, Texas 78711-3087



7-088-06

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Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383					
4. Generator's Phone ( )					
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930			
7. Transporter 2 Company Name		8. US EPA ID Number			
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371			
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol
X	a. HAZARDOUS WASTE-SOLID, N.O.S. (ARSENIC, MERCURY) 9. NA3077. PGIII ERG#171		DM		P
	b. NON RCRA HAZARDOUS WASTE, SOLID		DM		P
	c. NON RCRA HAZARDOUS WASTE-LIQUID		DM		P
	d. NON RCRA HAZARDOUS WASTE-SOLID		DM		P
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A-7399 B-27797 C-37802 D-37797					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed / Typed Name F. J. ...		Signature F. J. ...		Month Day Year 10/1/97	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature ...		Date 10/1/97	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature ...		Date 10/1/97	
19. Discrepancy Indication Space DICE 01217					
20. Facility Owner or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in item 19					
Printed / Typed Name		Signature		Date Month Day Year	

## CUSTOMER

[illegible]

Air liqoide osc.

Yr32 2000 RD


Grade 6 Form C-91670

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERRAL NUMBER
626-575-4685	JOHNNY JIMENEZ		06		M003381
			CREDIT CODE	PREVIOUS BALANCE	BAL OVER 60 DAY
			BUSINESS TYPE	CHAIN	OUTER COUNTRY
			LOCATION	TAX EXEMPTION NO.	
			708806		

SERVICE DATE	SALES REP NO.	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M S TAX	PRODUCT TAX
4-5-66	10333					PW			

DEPT	SERVICE/ PRODUCT	SERIAL NUMBER	REMARKS/ UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS			CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIAL)	CHANGE SOL. DATE (YY MM)	INV CODE	PROMO NO		
									CLEAN	SPENT	2 OF CONT								SK DOT
1																			
2	15588	2081761	825080	1	316	-	316												
3																			
4	2003309	Empty	55	1	60	55	60												
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

DICE 01218





TOTAL-SERVICE/PRODUCTS		390	52	276	CHECK APPROPRIATE BOXES  MACHINE CONDITION & CLEANLINESS  LAMP ASSEMBLY CONDITION	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
USEPA TRANSPORTER 1 ID NO.	USEPA TRANSPORTER 2 ID NO.	GENERATOR USEPA ID NO.	GENERATOR STATE ID NO.	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO. STICKER AFFIXED TO MACHINE	<input type="checkbox"/>
TXR000050930					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12. CONTAINERS NO.	13. TYPE	14. TOTAL QUANTITY	15. UNIT VOLUME	16. SK DOT NUMBER	17. 516305	18. CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)					839		0 TO 220 LBS./MONTH <u>AN</u> INITIALS
USED CLEANING COMPOUNDS, N.O.I.B.N. (NON-RCRA HAZARDOUS WASTE LIQUID, NOT USDOT REGULATED)AQUEOUS PW SOLUTION (8.3#/G)					941		220 LBS TO 2,200 LBS./MONTH <u>          </u> INITIALS
USED CLEANING COMPOUNDS, N.O.I.B.N. (NON-RCRA HAZARDOUS WASTE LIQUID, NOT USDOT REGULATED)AQ IC(8.4#GAL)					3311		GREATER THAN 2,200 LBS./MONTH <u>          </u> INITIALS

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS.	USA EPA ID NO.
			STATE ID NO.

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO.	
	CHECK NUMBER	<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS	
INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$
PREVIOUS CREDIT CARD NO			

MANIFEST NO.	
5042 5562	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	37

WASTE MATERIALS

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

"This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are proper condition for transportation according to the applicable regulations of the Department of Transportation."

Andra MACIAS

Print Customer Name

By: Andra Macias

Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	386.41
WASTE MIN. (FROM ABOVE)	
TOTAL DUE	

DO NOT WRITE IN THE AREA BELOW

MO03381205  
430229

<b>BILL OF LADING/MANIFEST</b>		1. Shipper's US EPA ID No. (if Applicable) <b>CAL000021160</b>	Document No. <b>85359</b>	2 Page 1 of 1	
3. Shipper's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>					
4 Shipper's Phone <b>(562) 945-1383</b>					
5. Transporter 1 Company Name <b>SAFETY-KLEEN SYS, INC.</b>		6 US EPA ID Number <b>TXR000050930</b>	A Transporter's Phone <b>800 669-5740</b>		
7. Transporter 2 Company Name		8 US EPA ID Number	B Transporter's Phone		
9. Designated Facility Name and Site Address <b>000798 SAFETY-KLEEN SYSTEMS, INC. 10625 HICKSON ST UNIT A EL MONTE CA 91731</b>		10 US EPA ID Number <b>CAT000613893</b>	C Facility's Phone <b>626 401-2616</b>		
11. Shipping Name and Description			12 Containers	13. Total	14. Unit
			No	Quantity	Wt/Vol
a	<input checked="" type="checkbox"/> HM <b>USED CLEANING COMPOUNDS, LIQUID, NOS (NOT USDOT/USEPA REGULATED)(NON HAZARDOUS AQUEOUS PARTS WASHER SOLUTION)(8.3#/GAL)</b>		DM	000.50	G
b					
c					
d					
15. Special Handling Instruction and Additional Information					
<p style="text-align: center;">MFST R/T#107161921 0002-2155-24  EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.</p> <p style="text-align: center;">SKDOT# A:      492 B:      C:      D:</p>					
16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION: <small>This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation</small>					
Printed/Typed Name			Month Day Year		
16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal					
Printed/Typed Name <b>ANITA MACIAS</b>			Month Day Year <b>04/09/06</b>		
17. Transporter 1 Acknowledgement of Receipt of Materials			Signature		
Printed/Typed Name			Month Day Year		
18. Transporter 2 Acknowledgement of Receipt of Materials			Signature		
Printed/Typed Name			Month Day Year		
19. Discrepancy Indication Space					
20. Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19					
Printed/Typed Name <b>Danny Barajas</b>			Signature <b>Danny Barajas</b>		
			Month Day Year <b>04/09/06</b>		

SHIPPER

TRANSPORTER

FACILITY

<b>BILL OF LADING/MANIFEST</b>		1. Shipper's US EPA ID No (If Applicable) <b>CAL000021160</b>	Document No.	2 Page 1 of 1
3 Shipper's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>				
4. Shipper's Phone ( <b>562 945-1383</b> )				
5. Transporter 1 Company Name <b>SAFETY-KLEEN SYS. INC.</b>		6 US EPA ID Number <b>TXR000050930</b>	A. Transporter's Phone <b>800 669-5740</b>	
7. Transporter 2 Company Name		8 US EPA ID Number	B. Transporter's Phone	
9. Designated Facility Name and Site Address <b>000798 SAFETY-KLEEN SYSTEMS, INC. 10625 HICKSON ST UNIT A EL MONTE CA 91731</b>		10 US EPA ID Number <b>CAT000613893</b>	C. Facility's Phone <b>626 401-2616</b>	
11 Shipping Name and Description				
	HM		12 Containers No	13 Total Quantity
a.		<b>USED CLEANING COMPOUNDS, LIQUID, NOS (NOT USDOT/USEPA REGULATED)(NON HAZARDOUS AQUEOUS PARTS WASHER SOLUTION)(8.3#/GAL)</b>		
b.				
c.				
d.				
15. Special Handling Instruction and Additional Information				
<b>MFST R/T#107161921 0002-2155-24</b> <b>EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.</b> <b>SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.</b>  <b>SKDOT# A: 492 B: C: D:</b>				
16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION: <small>*This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation</small>				
Printed/Typed Name			Month	Day
16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal				
Printed/Typed Name			Month	Day
17 Transporter 1 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature	Month	Day
18 Transporter 2 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature	Month	Day
19 Discrepancy Indication Space				
<b>DICE 01220</b>				
20 Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19				
Printed/Typed Name		Signature	Month	Day

SHIPPER

TRANSPORTER

FACILITY



TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY  
P.O. Box 13087  
Austin, Texas 78711-3087



7-088-06

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 19777	2 Page 1 of 1	Information in the shaded area is not required by Federal law	
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383				A. State Manifest Document Number 501249471		
4. Generator's Phone ( )				B. State Generator ID B0006		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930		C. State Transporter ID 87109		
7. Transporter 2 Company Name TRIAD		8. US EPA ID Number TXD981588791		D. Transporter's Phone 800-669-5840		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371		E. State Facility ID 87109		
				F. Facility's Phone 940-483-5200		
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
X	a. <del>HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC MERCURY) 9, NA3077, PGIII ERG#171)</del>		DM		P	352
	b. NON RCRA HAZARDOUS WASTE, SOLID	001	DM	00180	P	OUTS4091
	c. <del>NON RCRA HAZARDOUS WASTE, LIQUID</del>		DM		P	OUTS5191
	d. NON RCRA HAZARDOUS WASTE, SOLID		DM		P	352
16. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7597 B: 37797 C: 37802 D: 37797				K. Handling Codes for Wastes Listed Above 04061		
15. Special Handling Instructions and Additional Information MFST R/T#106976583 0002-2155-24 EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7597 B: 37797 C: 37802 D: 37797						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed / Typed Name A. T. Tucker		Signature 		Month Day Year 12/6/6		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature 		Month Day Year 12/6/6		
Printed / Typed Name K. Deason		Signature 		Month Day Year 10/21/6		
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature 		Month Day Year 10/21/6		
Printed / Typed Name K. Deason		Signature 		Month Day Year 10/21/6		
19. Discrepancy Indication Space DICE 01221						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						
Printed / Typed Name A. T. Tucker		Signature 		Date Month Day Year		



Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 7777	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383				A. State Manifest Document Number 001245471	
4. Generator's Phone ( )		6. US EPA ID Number TXR000050930		C. State Manifest Document Number 001245471	
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		8. US EPA ID Number		D. State Manifest Document Number 001245471	
7. Transporter 2 Company Name		10. US EPA ID Number TXDO77603371		E. State Manifest Document Number 001245471	
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208					
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
X	a. HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC, MERCURY) 9, NA3077, PGIII ERG171		DM		P
	b. NON RCRA HAZARDOUS WASTE, SOLID	001	DM	001/06	P
	c. NON RCRA HAZARDOUS WASTE, LIQUID		DM		P
	d. NON RCRA HAZARDOUS WASTE, SOLID		DM		P
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7397 B: 37797 C: 37802 D: 37797		K. Handling Codes for Wastes Listed Above			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed / Typed Name		Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space DICE 01222					
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed / Typed Name		Signature		Date	

TCEQ FORM 7-0001956208  
SMPL# A)0002081732

White - original  
B)0002080523  
B)0002081761

Pink-TSD-Facility  
C)0001958168  
C)0002081730

Yellow-Transporter  
D)0001962229  
D)0002081762

Plano, Texas 75024  
CUSTOMER NO.

www.safety-kleen.com



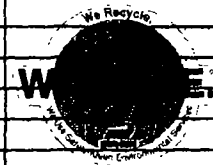
FOR SERVICE CALL 626-575-4685		BRANCH MANAGER JOHNNY JIMENEZ		DOC. EXP		SCHEDULED SERVICE WEEK 06		SCHEDULED TERRITORY		REFERENCE NUMBER M003279442	
CREDIT CODE		PREVIOUS BALANCE		BAL. OVER 60 DAYS							
BUSINESS TYPE		CHAIN		OUTER COUNTY		SVC P/C		PROD. P/C			
LOCATION 708806		TAX EXEMPTION NO.									

2-2155-24  
Mr. Liquide OSC  
7830 Dine Rd  
San Ramon Springs CA 94670

SERVICE DATE 7-16-06	SALES REP NO 0333	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE PW	ASSOC CODE	SERVICE TAX	COM S. TAX	PRODUCT TAX
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DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN.	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIAL)	CHANGE RCH DATE (YY MM)	INV CODE	PROMO NO	MSDS GIVEN
									CLEAN SPENT	SK DOT						
1	77888	2081761	775080	1	316	-	316									
2																
3																
4	103369			1	68	528	6924									
5																
6	DEAD															
7																
8																
9																
10																
11																
12																

DICE 01223



TOTAL-SERVICE/PRODUCTS

316 528

CHECK APPROPRIATE BOXES	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
MACHINE CONDITION & CLEANLINESS	<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO. STICKER AFFIXED TO MACHINE	<input type="checkbox"/>	<input type="checkbox"/>
LAMP ASSEMBLY CONDITION	<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER	5168055	I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)				039		0 TO 220 LBS./MONTH
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)				941		220 LBS. TO 2,200 LBS./MONTH
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)				3311		GREATER THAN 2,200 LBS./MONTH

DESIGNATED FACILITY NAME AND ADDRESS SAFETY-KLEEN SYSTEMS, INC.

I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS.

USA EPA ID NO.  
STATE ID NO.

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE # AMOUNT \$
PREVIOUS CREDIT NO.		

MANIFEST NO.	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	15 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Print Customer Name  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	

DO NOT WRITE IN THE AREA BELOW

M003279442  
000333

SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev. 05/04)

64333101  
JO-424-8802: WITHIN CALIFORNIA, CALL 1-800-852-7550

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER AT 1-800-424-8802

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator's US EPA ID No <b>CAL000021160</b>	Manifest Document No <b>5767</b>	2 Page 1 of 1	Information in the shaded areas is not required by Federal law
3. Generator's Name and Mailing Address <b>8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>			A. State Manifest Document Number <b>24355767</b>		
4. Generator's Phone <b>562 945-1383</b>			B. State Generator's ID		
5. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS INC.</b>			C. State Transporter's ID (Reserved)		
6. US EPA ID Number <b>TXR000050930</b>			D. Transporter's Phone <b>800 669-5840</b>		
7. Transporter 2 Company Name			E. State Transporter's ID (Reserved)		
8. US EPA ID Number			F. Transporter's Phone		
9. Designated Facility Name and Site Address <b>DEMENNO / KERDOON 2000 NORTH ALEMEDA STREET COMPTON CA 90222</b>			G. State Facility's ID <b>CAT080013352</b>		
10. US EPA ID Number <b>CAT080013352</b>			H. Facility's Phone <b>310 537-7100</b>		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12 Containers No Type	13 Total Quantity	14 Unit Wt/Vol	1. Waste Number
a. <b>NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)</b>		<b>0011 TT</b>	<b>002110</b>	<b>G</b>	State <b>222</b> EPA/Other
b. <b>THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE DEMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED BY EPA NUMBER IS CAT080013352</b>					State EPA/Other
c. <b>THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE DEMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED BY EPA NUMBER IS CAT080013352</b>					State EPA/Other
d. <b>THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE DEMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED BY EPA NUMBER IS CAT080013352</b>					State EPA/Other
15. Special Handling Instructions and Additional Information <b>EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.</b> <b>PO# 750134431 SKDOT# A: 3287 B: C: D:</b>		K. Handling Codes for Wastes Listed Above			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.		17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name: <b>Tom Hermann</b> Signature: <i>[Signature]</i> Month: <b>01</b> Day: <b>12</b> Year: <b>06</b>			
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name: Signature: Month: Day: Year:		19. Discrepancy Indication Space <b>QUANTITY DISCREPANCY GREATER THAN 10% VARIATION RECONCILED WITH GENERATOR TRANSPORTER ON 1-25-06 WITH Psta OF Safety Kleen RECEIVED 174 GALLONS</b>			
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest as noted in item 19 Printed/Typed Name: <b>CONTRAL P. SIA</b> Signature: <i>[Signature]</i> Month: <b>01</b> Day: <b>24</b> Year: <b>06</b>					

DO NOT WRITE BELOW THIS LINE.

Yellow

TSDF SENDS THIS COPY TO GENERATOR WITHIN 30 DAYS  
(Generators who submit hazardous waste for transport out-of-state, produce completed copy of this copy and send to DTSC within 30 days)



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No. 44229	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383				A. State Manifest Document Number 01249249		
4. Generator's Phone ( )				B. State Hazardous Waste ID 00006		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC				C. State Transporter ID 67109		
6. US EPA ID Number TXR000050930				D. Transporter Phone 800 569-5840		
7. Transporter 2 Company Name TRIAL TRANSPORT INC				E. State Transporter ID 44036		
8. US EPA ID Number AK09815 88791				F. Transporter Phone 312-1128		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208				G. State Facility ID 00006		
10. US EPA ID Number TXD077603371				H. Facility Phone 940 463-5200		
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
X	a. <del>WASTE AEROSOLS 2.1 UN1950 (ERG#126)</del>		DM		P	OUTS001H
X	b. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)	001	DM	00460	P	OUTS219H
X	c. <del>WASTE AEROSOLS, FLAMMABLE 2.1 UN1950 (ERG#126)</del>		DM		P	OUTS409H
X	d. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		P	OUTS209H
16. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 20332 B: 163141 C: 20335 D: 163141						
17. Generator's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed / Typed Name Anita Macias		Signature Anita Macias		Month Day Year 6/16/86		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature John Macias		Date 6/16/86		
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature John Macias		Date 6/16/86		
19. Discrepancy Indication Space DICE 01225						
20. Facility Owner or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in item 19						
Printed / Typed Name K Foster		Signature K Foster		Month Day Year 11/13/86		



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CAL000021160	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383			A. State Machine No. 012248248		
4. Generator's Phone ( )		6. US EPA ID Number TXR000050930		B. State Machine No. 012248248	
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		8. US EPA ID Number		C. State Machine No. 012248248	
7. Transporter 2 Company Name		10. US EPA ID Number TXD077603371		D. State Machine No. 012248248	
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208					
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
X	a. WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		P 000001H
X	b. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#128)	001	DM	DO01.60	P 000001H
X	c. WASTE AEROSOLS, FLAMMABLE 2.1 UN1950 (ERG#126)		DM		P 000001H
X	d. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (DO01) (ERG#128)		DM		P 000001H
J. Hazardous Waste Codes for Waste Listed Above D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042 D043 D044 D045 D046 D047 D048 D049 D050 D051 D052 D053 D054 D055 D056 D057 D058 D059 D060 D061 D062 D063 D064 D065 D066 D067 D068 D069 D070 D071 D072 D073 D074 D075 D076 D077 D078 D079 D080 D081 D082 D083 D084 D085 D086 D087 D088 D089 D090 D091 D092 D093 D094 D095 D096 D097 D098 D099 D100 D101 D102 D103 D104 D105 D106 D107 D108 D109 D110 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130 D131 D132 D133 D134 D135 D136 D137 D138 D139 D140 D141 D142 D143 D144 D145 D146 D147 D148 D149 D150 D151 D152 D153 D154 D155 D156 D157 D158 D159 D160 D161 D162 D163 D164 D165 D166 D167 D168 D169 D170 D171 D172 D173 D174 D175 D176 D177 D178 D179 D180 D181 D182 D183 D184 D185 D186 D187 D188 D189 D190 D191 D192 D193 D194 D195 D196 D197 D198 D199 D200 D201 D202 D203 D204 D205 D206 D207 D208 D209 D210 D211 D212 D213 D214 D215 D216 D217 D218 D219 D220 D221 D222 D223 D224 D225 D226 D227 D228 D229 D230 D231 D232 D233 D234 D235 D236 D237 D238 D239 D240 D241 D242 D243 D244 D245 D246 D247 D248 D249 D250 D251 D252 D253 D254 D255 D256 D257 D258 D259 D260 D261 D262 D263 D264 D265 D266 D267 D268 D269 D270 D271 D272 D273 D274 D275 D276 D277 D278 D279 D280 D281 D282 D283 D284 D285 D286 D287 D288 D289 D290 D291 D292 D293 D294 D295 D296 D297 D298 D299 D300 D301 D302 D303 D304 D305 D306 D307 D308 D309 D310 D311 D312 D313 D314 D315 D316 D317 D318 D319 D320 D321 D322 D323 D324 D325 D326 D327 D328 D329 D330 D331 D332 D333 D334 D335 D336 D337 D338 D339 D340 D341 D342 D343 D344 D345 D346 D347 D348 D349 D350 D351 D352 D353 D354 D355 D356 D357 D358 D359 D360 D361 D362 D363 D364 D365 D366 D367 D368 D369 D370 D371 D372 D373 D374 D375 D376 D377 D378 D379 D380 D381 D382 D383 D384 D385 D386 D387 D388 D389 D390 D391 D392 D393 D394 D395 D396 D397 D398 D399 D400 D401 D402 D403 D404 D405 D406 D407 D408 D409 D410 D411 D412 D413 D414 D415 D416 D417 D418 D419 D420 D421 D422 D423 D424 D425 D426 D427 D428 D429 D430 D431 D432 D433 D434 D435 D436 D437 D438 D439 D440 D441 D442 D443 D444 D445 D446 D447 D448 D449 D450 D451 D452 D453 D454 D455 D456 D457 D458 D459 D460 D461 D462 D463 D464 D465 D466 D467 D468 D469 D470 D471 D472 D473 D474 D475 D476 D477 D478 D479 D480 D481 D482 D483 D484 D485 D486 D487 D488 D489 D490 D491 D492 D493 D494 D495 D496 D497 D498 D499 D500 D501 D502 D503 D504 D505 D506 D507 D508 D509 D510 D511 D512 D513 D514 D515 D516 D517 D518 D519 D520 D521 D522 D523 D524 D525 D526 D527 D528 D529 D530 D531 D532 D533 D534 D535 D536 D537 D538 D539 D540 D541 D542 D543 D544 D545 D546 D547 D548 D549 D550 D551 D552 D553 D554 D555 D556 D557 D558 D559 D560 D561 D562 D563 D564 D565 D566 D567 D568 D569 D570 D571 D572 D573 D574 D575 D576 D577 D578 D579 D580 D581 D582 D583 D584 D585 D586 D587 D588 D589 D590 D591 D592 D593 D594 D595 D596 D597 D598 D599 D600 D601 D602 D603 D604 D605 D606 D607 D608 D609 D610 D611 D612 D613 D614 D615 D616 D617 D618 D619 D620 D621 D622 D623 D624 D625 D626 D627 D628 D629 D630 D631 D632 D633 D634 D635 D636 D637 D638 D639 D640 D641 D642 D643 D644 D645 D646 D647 D648 D649 D650 D651 D652 D653 D654 D655 D656 D657 D658 D659 D660 D661 D662 D663 D664 D665 D666 D667 D668 D669 D670 D671 D672 D673 D674 D675 D676 D677 D678 D679 D680 D681 D682 D683 D684 D685 D686 D687 D688 D689 D690 D691 D692 D693 D694 D695 D696 D697 D698 D699 D700 D701 D702 D703 D704 D705 D706 D707 D708 D709 D710 D711 D712 D713 D714 D715 D716 D717 D718 D719 D720 D721 D722 D723 D724 D725 D726 D727 D728 D729 D730 D731 D732 D733 D734 D735 D736 D737 D738 D739 D740 D741 D742 D743 D744 D745 D746 D747 D748 D749 D750 D751 D752 D753 D754 D755 D756 D757 D758 D759 D760 D761 D762 D763 D764 D765 D766 D767 D768 D769 D770 D771 D772 D773 D774 D775 D776 D777 D778 D779 D780 D781 D782 D783 D784 D785 D786 D787 D788 D789 D790 D791 D792 D793 D794 D795 D796 D797 D798 D799 D800 D801 D802 D803 D804 D805 D806 D807 D808 D809 D810 D811 D812 D813 D814 D815 D816 D817 D818 D819 D820 D821 D822 D823 D824 D825 D826 D827 D828 D829 D830 D831 D832 D833 D834 D835 D836 D837 D838 D839 D840 D841 D842 D843 D844 D845 D846 D847 D848 D849 D850 D851 D852 D853 D854 D855 D856 D857 D858 D859 D860 D861 D862 D863 D864 D865 D866 D867 D868 D869 D870 D871 D872 D873 D874 D875 D876 D877 D878 D879 D880 D881 D882 D883 D884 D885 D886 D887 D888 D889 D890 D891 D892 D893 D894 D895 D896 D897 D898 D899 D900 D901 D902 D903 D904 D905 D906 D907 D908 D909 D910 D911 D912 D913 D914 D915 D916 D917 D918 D919 D920 D921 D922 D923 D924 D925 D926 D927 D928 D929 D930 D931 D932 D933 D934 D935 D936 D937 D938 D939 D940 D941 D942 D943 D944 D945 D946 D947 D948 D949 D950 D951 D952 D953 D954 D955 D956 D957 D958 D959 D960 D961 D962 D963 D964 D965 D966 D967 D968 D969 D970 D971 D972 D973 D974 D975 D976 D977 D978 D979 D980 D981 D982 D983 D984 D985 D986 D987 D988 D989 D990 D991 D992 D993 D994 D995 D996 D997 D998 D999					
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 20332 B: 163141 C: 20335 D: 103141					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed / Typed Name Austin, Texas		Signature [Signature]		Month Day Year 11/16/85	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed / Typed Name [Name]		Signature [Signature]		Month Day Year 11/16/85	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed / Typed Name [Name]		Signature [Signature]		Month Day Year 11/16/85	
19. Discrepancy Indication Space DICE 01226					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed / Typed Name [Name]		Signature [Signature]		Month Day Year 11/16/85	

TCEQ 00002223148  
SMPL# A)0003435148

White original  
B)0002224730  
B)0003435155

Pink-TSD Facility  
C)0000004521  
C)0002355350

Yellow-Transporter  
D)0002111161  
D)0002355351

Green-Generator's first copy



Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EIA ID No.	Manifest Document No.	2 Page 1 of 1	Information in the shaded areas is not required by Federal law	
3 Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS 562 945-1383		CAL00C021160		A. State Manifest Document Number <b>S 01249249</b>		
4. Generator's Phone ( )		6 US EPA ID Number TXR000050930		B. State Generator's ID D0006		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		8 US EPA ID Number TXR000050930		C. State Transporter's ID 87109		
7. Transporter 2 Company Name TRAC TRANSPORT INC		10 US EPA ID Number TXR000050930		D. Transporter's Phone 800 669-5840		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		11 US EPA ID Number TXD077603371		E. State Transporter's ID 41036		
				F. Transporter's Phone 800 324-1129		
				G. State Facility ID 65124		
				H. Facility's Phone 940 483-5200		
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12 Containers No	Type	13 Total Quantity	14 Unit Wt/Vol	15 Waste No
X	a WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		P	OUTS001H
X	b RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)	001	DM	00460	P	OUTS219H
X	c WASTE AEROSOLS, FLAMMABLE 2.1 UN1950 (ERG#126)		DM		P	OUTS409H
X	d RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		P	OUTS209H
J. Additional Descriptions for Materials Listed Above (D001 352 ID) F003 F005 D003		K. Handling Codes for Wastes Listed Above H061				
15 Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 20332 B: 163141 C: 20335 D: 163141						
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed / Typed Name Anita MACIAS		Signature Anita Macias		Month Day Year 11/13/06		
17 Transporter 1 Acknowledgement of Receipt of Materials		Signature John Macias		Date 11/13/06		
18 Transporter 2 Acknowledgement or Receipt of Materials		Signature John Macias		Date 11/13/06		
19. Discrepancy Indication Space DICE 01227						
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19						
Printed / Typed Name K Foster		Signature K Foster		Date 11/13/06		

TCEQ Form 0002223148  
SMPL# A)0003435148

White original B)0002223148  
Pink-TSD Facility C)0003435155

Yellow-Transporter D)0002355350

Green-Generator's first copy E)0002141164  
F)0002355351



**Plano, Texas 75024**

**www.safety-kleen.com**

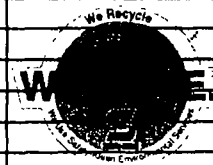
**CUSTOMER NO.**

FOR SERVICE CALL	BRANCH MANAGER	DOC EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	JOHNNY JIMENEZ		06		M003202960
			CREDIT CODE	PREVIOUS BALANCE	BAL. OVER 60 DAYS
			BUSINESS TYPE	CHAIN	OUTER COUNTRY
			LOCATION		TAX EXEMPTION NO.
			708806		

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
1/14/6	D333					PW			

[illegible]

**DICE 01228**



TOTAL-SERVICE/PRODUCTS		35438	528	339		CHECK APPROPRIATE BOXES	GOOD POOR <input type="checkbox"/> <input type="checkbox"/>	DECALS IN PLACE AND LEGIBLE <input type="checkbox"/> <input type="checkbox"/>	YES NO <input type="checkbox"/> <input type="checkbox"/>	MACHINE PROPERLY GROUNDED <input type="checkbox"/> <input type="checkbox"/>	YES NO <input type="checkbox"/> <input type="checkbox"/>	GMENT
USEPA TRANSPORTER 1 ID NO.	USEPA TRANSPORTER 2 ID NO.	GENERATOR USEPA ID NO.	GENERATOR STATE ID NO.	→	MACHINE CONDITION & CLEANLINESS <input type="checkbox"/> <input type="checkbox"/>	FUSIBLE LINK INSTALLED <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	LOCAL PHONE NO STICKER AFFDED TO MACHINE <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>		
TXR000050930					LAMP ASSEMBLY CONDITION <input type="checkbox"/> <input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>		

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12. CONTAINERS NO.	13. TYPE QUANTITY	14. UNIT WT/VOL	SK DOT NUMBER	5163055	15. I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES: 0 TO 220 LBS./MONTH 220 LBS TO 2,200 LBS./MONTH GREATER THAN 2,200 LBS./MONTH
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)				839		INITIALS <u>                    </u>
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)				941		INITIALS <u>                    </u>
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)				3311		INITIALS <u>                    </u>

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS	USA EPA ID NO.
			STATE ID NO. 63

<div style="text-align: center;"> <b>PREVIOUS CREDIT CARD NO</b> → </div>	<div style="display: flex; justify-content: space-between;"> <span>CASH <input type="checkbox"/></span> <span>TOTAL RECEIVED</span> </div>		<div style="text-align: center;"> <b>APPLY PAYMENT TO</b> </div>	
	CHECK NUMBER		<div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/> TODAY'S SERVICE/SALE</span> <span><input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS</span> </div>	
	INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$

MANIFEST NO.	
501249219	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	131

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Amrita MACIA S

Print Customer Name

By: Amrita Macia S

Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	37
WASTE MIN (FROM ABOVE)	
TOTAL DUE	

DO NOT WRITE IN THE AREA BELOW

MO03202960  
000333

# SERVICE AND SALES ACKNOWLEDGMENT





5400 Legacy Drive, Cluster II, B3 800-669-5740  
Plano, Texas 75024 www.safety-kleen.com

# PLACEMENT FORM

FOR SERVICE CALL	BRANCH MANAGER	REFERENCE NUMBER
626-575-4685	JOHNNY JIMENEZ	P001459617

DUNS NO 05-397-6551 FED. ID NO. 396090019

## GENERATOR LOCATION

## BILL TO (IF DIFFERENT FROM LOCATION)

NAME	ADDRESS	CITY & STATE	ZIP	TAX CODE
Air Liquide	8832 Dickey Rd	ATTN: Rafael Motta	57501	
CITY & STATE	ADDRESS	CITY & STATE	ZIP	TAX CODE
57501	ALP 186715 ASR			

NAME	TITLE	SIGN
1		
2		

7	LOS AN 06	SIC CODE
BUSINESS TYPE	CHAIN	ASSOCIATION SVC P/C PROD P/C
SALES TAX EXEMPTION NUMBER		

DATE PLACED	SALES REP NO	CUSTOMER'S P.O. NUMBER	BLANKET	TEMPORARY	CUSTOMER PHONE NO	HANDLING CODE	CREDIT CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
5/15/06	24206	P04 750150992								

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	SOLVENT/DRUMS	CC	SERVICE TERM	SCHEDULE DATE (YY WW)	FREE TRIAL	INITIALS	PROMO NO	RELEASE NO.	MSD GIVE
1																
2																
3																
4																
5																
6																
7																

DICE 01229

TOTAL-SERVICE/PRODUCTS	TXR000050930	GENERATOR STATE ID NO.
------------------------	--------------	------------------------

11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)	12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WGT/VOL	SK DOT NUMBER	INITIALS
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III				839	
A. (D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)				941	
USED CLEANING COMPOUNDS, N.O.I.B.N. (NON-RCRA HAZARDOUS WASTE				3311	
B. LIQUID, NOT USDOT REGULATED)AQUEOUS PW SOLUTION (8.3#/G)					
USED CLEANING COMPOUNDS, N.O.I.B.N. (NON-RCRA HAZARDOUS					
C. WASTE LIQUID, NOT USDOT REGULATED)AQ IC(8.4#GAL)					
D.					

I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
0 TO 220 LBS./MONTH
220 LBS. TO 2,200 LBS./MONTH
GREATER THAN 2,200 LBS./MONTH

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	USA EPA ID NO.	STATE ID NO.
--------------------------------------	----------------------------	----------------	--------------

PAYMENT METHOD	CASH	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER			TODAY'S SERVICE/SALE
INVOICE #	AMOUNT \$	INVOICE #	PREVIOUS BALANCE AS FOLLOWS
PREVIOUS CREDIT CARD NO			
CREDIT CARD NO.		EXP. DATE	
CUSTOMER REFERENCE			

MANIFEST NO.	SEQ #
LDR MESSAGE	14. D
MANIFEST CODE	

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

By Rafael L. Motta  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	TOTAL DUE
	\$3112.00
DO NOT WRITE IN AREA BELOW	
P001459617	
432173	

## BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No (If Applicable)

Document No.

2 Page 1  
of 1

CAL000021160

64374

3 Shipper's Name and Mailing Address

AIR LIQUIDE OSC  
8832 DICE ROAD

SANTA FE SPRINGS

CA 90670

4 Shipper's Phone ( 562 ) 945-1383

5 Transporter 1 Company Name

SAFETY-KLEEN SYS. INC.

6

US EPA ID Number

TXR000050930

A Transporter's Phone

800 669-5740

7 Transporter 2 Company Name

8

US EPA ID Number

B Transporter's Phone

9 Designated Facility Name and Site Address

000798

10

US EPA ID Number

C Facility's Phone

SAFETY-KLEEN SYSTEMS, INC.  
10625 HICKSON ST UNIT A  
EL MONTE CA 91731

CAT000613893

626 401-2616

11 Shipping Name and Description

HM

12 Containers

No

Type

13  
Total  
Quantity14.  
Unit  
Wt/Vol

a

USED CLEANING COMPOUNDS, LIQUID, NOS  
(NON-REGULATED LIQUID, NOT USDOT  
REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)

002

DM

00056

P

b

c

d

15 Special Handling Instruction and Additional Information

EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.

SKDOT# A:

492 B:

C:

D:

16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

\*This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

Printed/Typed Name

Signature

Month Day Year

Arthur R. Lerner

Signature

11/06/06

16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal

Printed/Typed Name

Signature

Month Day Year

Arthur R. Lerner

Signature

11/06/06

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

Toni M. Wynn

Signature

11/06/06

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19 Discrepancy Indication Space

DICE 01230

20 Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19

Printed/Typed Name

Signature

Month Day Year

Sam Smith

Signature

11/17/06

## BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No. (If Applicable)

CAL000021160

Document No.

41235

2. Page 1  
of 1

3. Shipper's Name and Mailing Address

AIR LIQUIDE OSC  
8832 DICE ROAD

SANTA FE SPRINGS

CA 90670

4. Shipper's Phone ( 562 945-1383

5. Transporter 1 Company Name

SAFETY-KLEEN SYS, INC.

6

US EPA ID Number

TXR000050930

A. Transporter's Phone

800 669-5740

7. Transporter 2 Company Name

8

US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address 000798

SAFETY-KLEEN SYSTEMS, INC.  
10625 HICKSON ST UNIT A  
EL MONTE CA 91731

10

US EPA ID Number

CAT000613893

C. Facility's Phone

626 401-2616

11. Shipping Name and Description

HM

USED CLEANING COMPOUNDS, LIQUID, NOS  
(NON-REGULATED LIQUID, NOT USDOT  
REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)

12. Containers

No

Type

13.  
Total  
Quantity14.  
Unit  
Wt/Vol

001

DM

00020

G

15. Special Handling Instruction and Additional Information

MFST R/T#107724594 0002-2155-24  
EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.

SKDOT# A: 492 B: C: D:

## 16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

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Printed/Typed Name

Signature

Month Day Year

## 16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal

Printed/Typed Name

Signature

Month Day Year

## 17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

## 18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

DICE 01231

20. Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19

Printed/Typed Name

Signature

Month Day Year

<b>BILL OF LADING/MANIFEST</b>		1 Shipper's US EPA ID No. (If Applicable) <b>CAL000021160</b>	Document No. <b>611500</b>	2. Page 1 of 1																															
3. Shipper's Name and Mailing Address <b>AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670</b>																																			
4 Shipper's Phone ( <b>562 945-1383</b> )																																			
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYS. INC.</b>		6 US EPA ID Number <b>TXR000050930</b>	A Transporter's Phone <b>800 669-5740</b>																																
7 Transporter 2 Company Name		8 US EPA ID Number	B Transporter's Phone																																
9 Designated Facility Name and Site Address <b>000798 SAFETY-KLEEN SYSTEMS, INC. 10625 HICKSON ST UNIT A EL MONTE CA 91731</b>		10 US EPA ID Number <b>CAT000613893</b>	C Facility's Phone <b>626 401-2616</b>																																
11 Shipping Name and Description			12 Containers No Type	13 Total Quantity																															
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">HM</td> <td style="width:5%;">a</td> <td style="width:90%;"> <b>USED CLEANING COMPOUNDS LIQUID, NOS (NON-REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)</b> </td> </tr> <tr><td></td><td>b</td><td></td></tr> <tr><td></td><td>c</td><td></td></tr> <tr><td></td><td>d</td><td></td></tr> </table>			HM	a	<b>USED CLEANING COMPOUNDS LIQUID, NOS (NON-REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)</b>		b			c			d		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">No</td> <td style="width:5%;">Type</td> <td style="width:5%;">Quantity</td> <td style="width:5%;">Unit Wt/Vol</td> </tr> <tr> <td></td> <td><b>DM</b></td> <td><b>00020</b></td> <td><b>G</b></td> </tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td></tr> </table>	No	Type	Quantity	Unit Wt/Vol		<b>DM</b>	<b>00020</b>	<b>G</b>												
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	<b>DM</b>	<b>00020</b>	<b>G</b>																																
15 Special Handling Instruction and Additional Information  <div style="text-align: right;">MFST R/T#107724594 0002-2155-24</div> <b>EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.</b>  <div style="text-align: center;">SKDOT# A: 492 B: C: D:</div>																																			
16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION: <small>This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.</small>																																			
Printed/Typed Name			Month	Day																															
16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal																																			
Printed/Typed Name			Month	Day																															
<b>Arthur A. Luice</b>			<b>09</b>	<b>15</b>																															
17 Transporter 1 Acknowledgement of Receipt of Materials																																			
Printed/Typed Name		Signature		Month																															
<b>James A. Luice</b>		<i>[Signature]</i>		<b>09</b>																															
18 Transporter 2 Acknowledgement of Receipt of Materials																																			
Printed/Typed Name		Signature		Month																															
19 Discrepancy Indication Space																																			
20 Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19																																			
Printed/Typed Name			Signature																																
			<b>DICE 01232</b>																																
			Month	Day																															

IN EVENT OF EMERGENCY CALL  
1-800-468-1760 (24 hours)

GENERATOR'S COPY

FORM NO 90291 (11/96)

**CUSTOMER NO**

0	0	0	2	-	2	1	5	5	-	2	4
---	---	---	---	---	---	---	---	---	---	---	---

8832 DICE ROAD  
SANTA FE SPRINGS CA 90670

FOR SERVICE CALL		BRANCH MANAGER		DOC. EXP.		SCHEDULED SERVICE WEEK		SCHEDULED TERRITORY		REFERENCE NUMBER	
626-575-4685		JOHNNY JIMENEZ		11/11/06		06-37		23		0032641235	
						CREDIT CODE		PREVIOUS BALANCE		BAL. OVER 60 DAYS	
						E		27.85		27.85	
						BUSINESS TYPE		CHAIN		OUTER COUNTRY	
09		1091		NO		2288		2226			
						LOCATION			TAX EXEMPTION NO.		
						708806					

SERVICE DATE	SALES REP NO.	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE		ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
9/15/06	431071		562-945-1383	05-095-8001		PW		.0825		.0825

[illegible][illegible]

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)	12 CONTAINER NO.	13 TANKER TYPE	14 TOTAL QUANTITY	15 UNIT WT/VOL	SK DOT NUMBER	SIC CODE	HAZARDOUS WASTE CATEGORY	INITIALS
USED CLEANING COMPOUNDS, LIQUID, NOS, (NON-REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/G)	1	DM	20	G	492		0 TO 200 LBS./MONTH	<i>[Signature]</i>
							220 LBS TO 2,200 LBS./MONTH	<i>[Signature]</i>
							GREATER THAN 2,200 LBS./MONTH	<i>[Signature]</i>

DESIGNATED FACILITY NAME AND ADDRESS	SAFETY-KLEEN SYSTEMS, INC.	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE.	USA EPA ID NO.	CAT0000613893
'10625 HICKSON ST UNIT A	EL MONTE CA 91731		STATE ID NO.	CAT0000613893

CASH <input type="checkbox"/> CHECK NUMBER	TOTAL RECEIVED	APPLY PAYMENT TO <input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS		INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$
PREVIOUS CREDIT CARD NO.		MANIFEST NO. 41235 LDR MESSAGE LDR NOT REQ'D MANIFEST CODE US SEQ # 6					
I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS.		TOTAL CHARGE (FROM ABOVE) WASTE MIN (FROM ABOVE) TOTAL DUE 435.26					
DO NOT WRITE IN THE AREA BELOW 0032641235 0002-2155-24 -6		Print Customer Name Customer's Authorized Representative					

## SERVICE AND SALES ACKNOWLEDGMENT

# BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No (If Applicable)  
CAL000021160

Document No.

2 Page 1  
of 1

3 Shipper's Name and Mailing Address

AIR LIQUIDE OSC  
8832 DICE ROAD

SANTA FE SPRINGS

CA 90670

4 Shipper's Phone

562 945-1383

5 Transporter 1 Company Name

SAFETY-KLEEN SYS, INC.

6.

US EPA ID Number

TXR000050930

A. Transporter's Phone

800 669-5740

7 Transporter 2 Company Name

8

US EPA ID Number

B Transporter's Phone

9 Designated Facility Name and Site Address

000798

10

US EPA ID Number

C Facility's Phone

SAFETY-KLEEN SYSTEMS, INC.  
10625 HICKSON ST UNIT A  
EL MONTE CA 91731

CAT000613893

626 401-2616

11. Shipping Name and Description

HM

12 Containers

No.

Type

13  
Total  
Quantity

14  
Unit  
Wt/Vol

a USED CLEANING COMPOUNDS, LIQUID, NOS  
(NON-REGULATED LIQUID, NOT USDOT  
REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)

DM

G

b

c

d

15 Special Handling Instruction and Additional Information

EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.

SKDOT# A: 492 B: C: D:

16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

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Printed/Typed Name

Signature

Month Day Year

16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation and Disposal.

Printed/Typed Name

Signature

Month Day Year

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19 Discrepancy Indication Space

DICE 01234

20 Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19

Printed/Typed Name

Signature

Month Day Year

IN EVENT OF EMERGENCY CALL  
1-800-468-1760 (24 hours)

ORIGINAL-RETURN TO GENERATOR

FORM NO 90291 (11/96)

## BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No. (If Applicable)

CAL000021160

Document No

2. Page 1

of 1

3. Shipper's Name and Mailing Address

AIR LIQUIDE USC  
8832 DICE ROAD

SANTA FE SPRINGS

CA 90670

4. Shipper's Phone ( 562 945-1383

5. Transporter 1 Company Name

SAFETY-KLEEN SYS, INC.

6

US EPA ID Number

TXR000050930

A. Transporter's Phone

800 669-5740

7. Transporter 2 Company Name

8

US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address 000798

SAFETY-KLEEN SYSTEMS, INC.  
10625 HICKSON ST UNIT A  
EL MONTE CA 91731

10

US EPA ID Number

CAT000613893

C. Facility's Phone

626 401-2616

11. Shipping Name and Description

HM

USED CLEANING COMPOUNDS, LIQUID, NOS  
(NON-REGULATED LIQUID, NOT USDOT  
REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)

12. Containers

No

Type

13. Total  
Quantity14. Unit  
Wt/Vol

DM

G

15. Special Handling Instruction and Additional Information

EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.

SKDOT# A: 492 B: C: D:

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Printed/Typed Name

Month Day Year

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Printed/Typed Name

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

DICE 01235

20. Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19

Printed/Typed Name

Signature

Month Day Year

IN EVENT OF EMERGENCY CALL  
1-800-468-1760 (24 hours)

GENERATOR'S COPY

FORM NO 90291 (11/96)

<b>BILL OF LADING/MANIFEST</b>		1 Shipper's US EPA ID No. (If Applicable) <b>CAL000021160</b>	Document No <b>78717</b>	2. Page 1 of 1																									
3 Shipper's Name and Mailing Address <b>AIR LIQUIDE OSC</b> <b>8832 DICE ROAD</b> <b>SANTA FE SPRINGS CA 90670</b>																													
4 Shipper's Phone ( <b>562 945-1383</b> )																													
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYS, INC.</b>		6 US EPA ID Number <b>TXR000050930</b>	A. Transporter's Phone <b>800 669-5740</b>																										
7 Transporter 2 Company Name		8 US EPA ID Number	B. Transporter's Phone																										
9 Designated Facility Name and Site Address <b>000798</b> <b>SAFETY-KLEEN SYSTEMS, INC.</b> <b>10625 HICKSON ST UNIT A</b> <b>EL MONTE CA 91731</b>		10. US EPA ID Number <b>CAT000613893</b>	C. Facility's Phone <b>626 401-2616</b>																										
11 Shipping Name and Description		12 Containers	13. Total Quantity	14 Unit Wt/Vol																									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">HM</td> <td style="width:15%;"></td> <td style="width:60%;">USED CLEANING COMPOUNDS, LIQUID, NOS (NON-REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)</td> <td style="width:10%;">No</td> <td style="width:10%;">Type</td> </tr> <tr> <td>a</td> <td></td> <td></td> <td><b>002</b></td> <td><b>DM</b></td> </tr> <tr> <td>b</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>c</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>d</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		HM		USED CLEANING COMPOUNDS, LIQUID, NOS (NON-REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)	No	Type	a			<b>002</b>	<b>DM</b>	b					c					d						<b>00050</b>	<b>G</b>
HM		USED CLEANING COMPOUNDS, LIQUID, NOS (NON-REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)	No	Type																									
a			<b>002</b>	<b>DM</b>																									
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15 Special Handling Instruction and Additional Information																													
<p><b>MFST R/T#107339875 0002-2155-24</b></p> <p><b>EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.</b></p> <p><b>SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.</b></p> <p><b>SKDOT# A: 492 B: C: D:</b></p>																													
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Printed/Typed Name <b>[Redacted]</b> Month Day Year																													
16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal																													
Printed/Typed Name <b>Anita Macias</b> Month Day Year <b>06/02/06</b>																													
17 Transporter 1 Acknowledgement of Receipt of Materials																													
Printed/Typed Name <b>[Signature]</b>		Signature <b>[Signature]</b>		Month Day Year <b>06/02/06</b>																									
18 Transporter 2 Acknowledgement of Receipt of Materials																													
Printed/Typed Name <b>A</b>		Signature <b>[Signature]</b>		Month Day Year																									
19 Discrepancy Indication Space																													
<b>DICE 01236</b>																													
20 Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19																													
Printed/Typed Name <b>[Signature]</b>		Signature <b>[Signature]</b>		Month Day Year <b>06/05/06</b>																									

IN EVENT OF EMERGENCY CALL  
1-800-468-1760 (24 hours)

ORIGINAL-RETURN TO GENERATOR

FORM NO 90291 (11/96)



<b>BILL OF LADING/MANIFEST</b>		1 Shipper's US EPA ID No. (If Applicable) <b>CAL000021160</b>	Document No. <b>11117</b>	2 Page 1 of 1	
3 Shipper's Name and Mailing Address <b>AIR LIQUIDE OSC 6832 DICE ROAD SANTA FE SPRINGS CA 90670</b>					
4 Shipper's Phone (562) 915-1387					
5 Transporter 1 Company Name <b>SAFETY KLEEN SYS. INC</b>		6 US EPA ID Number <b>TXR000050930</b>	A Transporter's Phone <b>800 669-5740</b>		
7 Transporter 2 Company Name		8 US EPA ID Number	B Transporter's Phone		
9 Designated Facility Name and Site Address <b>600798 SAFETY-KLEEN SYSTEMS INC 10625 HICKSON ST UNIT A EL MONTE CA 91731</b>		10 US EPA ID Number <b>CAT0000613893</b>	C Facility's Phone <b>626 401-2616</b>		
11 Shipping Name and Description <b>HM</b> <b>USED CLEANING COMPOUNDS, LIQUID, NOS (NON REGULATED LIQUID, NOT USDOT REGULATED) AQUEOUS PW SOLUTION (8.3#/GAL)</b>			12. Containers		13
			No	Type	Total Quantity
				DM	
15 Special Handling Instruction and Additional Information  <b>EMERGENCY RESP 800-468-1760 (24 HR) IF UNDELIVERABLE RETURN TO GENERATOR. SHIP CORP AUTHORIZED TO OBTAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.</b>  <b>SKDOT# A 122 B C D</b>					
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Printed/Typed Name <b>[Redacted]</b> Month Day Year					
16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal					
Printed/Typed Name <b>Andra J. McNeil</b> Month Day Year <b>10/26/06</b>					
17 Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name <b>[Signature]</b>		Signature <b>[Signature]</b>		Month Day Year <b>10/26/06</b>	
18 Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name <b>H</b>		Signature		Month Day Year	
19 Discrepancy Indication Space					
<b>DICE 01237</b>					
20 Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19					
Printed/Typed Name		Signature		Month Day Year	

800-468-1760 (24 hours)  
1-800-468-1760 (24 hours)

GENERATOR'S COPY

FORM NO. 80291 (11/96)

<b>BILL OF LADING/MANIFEST</b>		1 Shipper's US EPA ID No. (If Applicable) <b>CAHQ00021160</b>	Document No. <b>340.91</b>	2 Page 1 of								
3. Shipper's Name and Mailing Address <b>APR Liquide 8732 DICE RD Santa Fe Springs LA 90670</b>												
4. Shipper's Phone (562) <b>945-1383</b>												
5. Transporter 1 Company Name <b>Safety-Kleen Systems, Inc</b>		6. US EPA ID Number <b>TXR000050930</b>	A. Transporter's Phone <b>87109</b>									
7. Transporter 2 Company Name <b>TRAD Transport</b>		8. US EPA ID Number <b>060781538</b>	B. Transporter's Phone <b>800-344-1139</b>									
9. Designated Facility Name and Site Address <b>Safety Kleen Systems 1722 Cooper Creek Road Denton TX 76205</b>		10. US EPA ID Number <b>TXR077603371</b>	C. Facility's Phone <b>940 483-5200</b>									
11. Shipping Name and Description			12. Containers No	13. Total Quantity								
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">HM</td> <td style="width:95%;">a. <b>Residue last contained</b></td> </tr> <tr> <td>b.</td> <td></td> </tr> <tr> <td>c.</td> <td></td> </tr> <tr> <td>d.</td> <td></td> </tr> </table>			HM	a. <b>Residue last contained</b>	b.		c.		d.		Type	14. Unit Wt/Vol
HM	a. <b>Residue last contained</b>											
b.												
c.												
d.												
				<b>0060 DMD027.0 P</b>								
15. Special Handling Instruction and Additional Information  <b>2) 1617</b> <b>2) OUTS3081</b> <b>H010</b> <b>MSR &amp; T # 106 975850</b>												
16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION: <small>This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.</small>												
Printed/Typed Name		Signature		Month Day Year								
16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal.												
Printed/Typed Name		Signature		Month Day Year								
				<b>01/23/06</b>								
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature										
Printed/Typed Name		Month Day Year										
<b>Joe May</b>		<b>01/23/06</b>										
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature										
Printed/Typed Name		Month Day Year										
<b>Joe Caywood</b>		<b>01/23/06</b>										
19. Discrepancy Indication Space  <b>DICE 01238</b>												
20. Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19												
Printed/Typed Name		Signature		Month Day Year								
<b>J Bailey</b>		<b>J Bailey</b>		<b>01/30/06</b>								

IN EVENT OF EMERGENCY CALL:  
1-800-468-1760 (24 hours)

ORIGINAL - RETURN TO GENERATOR

FORM NO 90291 (11/96)

# BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No. (If Applicable)

Document No.

2 Page 1 of

3. Shipper's Name and Mailing Address

4. Shipper's Phone (360) 715-1111

5. Transporter 1 Company Name

6.

US EPA ID Number

A Transporter's Phone

7. Transporter 2 Company Name

8.

US EPA ID Number

B Transporter's Phone

9. Designated Facility Name and Site Address

10.

US EPA ID Number

C Facility's Phone

11. Shipping Name and Description

HM

12 Containers

No.

Type

13 Total Quantity

14 Unit Wt/Vol

15 Special Handling Instruction and Additional Information

16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

Printed/Typed Name

Month Day Year

16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal

Printed/Typed Name

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

DICE 01239

20. Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year



5400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-669-5740  
www.safety-kleen.com



CUSTOMER NO

DUNS NO 05-397-8551

FED ID NO. 398090019

CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	JOHNNY JIMENEZ		06		M003234091

2-2155-24

At: Liquide  
8832 Dike RD

Santa Fe Springs CA 90676

EF-101

CREDIT CODE	PREVIOUS BALANCE	BAL OVER 60 DAYS		
BUSINESS TYPE	CHAIN	OUTER COUNTRY	SVC P/C	PROD P/C
LOCATION			TAX EXEMPTION NO	
708806				

SERVICE DATE	SALES REP NO	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S TAX	PRODUCT TAX
1-23-06	0333				PW				

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)(INITIAL)	CHANGE SCH DATE (YY WW)	INV. CODE	PROMO NO.	MSI/GV
									CLEAN SPENT # OF CONT SK DOT							
1		89024	Perdu	6	546	-	546									
2																
3																
4		100336	Empty	4	250	2112	2792									
5																
6		106609		1	10											
7																
8																
9																
10																
11																
12																



TOTAL-SERVICE/PRODUCTS

CHECK APPROPRIATE BOXES	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
MACHINE CONDITION & CLEANLINESS	<input type="checkbox"/>	<input type="checkbox"/>	FUSIBLE LINK INSTALLED	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PHONE NO STICKER AFFIXED TO MACHINE	<input type="checkbox"/>	<input type="checkbox"/>
LAMP ASSEMBLY CONDITION	<input type="checkbox"/>	<input type="checkbox"/>	EMERGENCY CLOSING OF LID UNOBSTRUCTED	<input type="checkbox"/>	<input type="checkbox"/>	SPENT SOLVENT MEETS ACCEPTANCE CRITERIA	<input type="checkbox"/>	<input type="checkbox"/>

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)

HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG 111  
(D039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)

USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)

USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)

12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
			839
			941
			3311

I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES	
0 TO 220 LBS/MONTH	
INITIALS	
220 LBS TO 2,200 LBS/MONTH	
INITIALS	
GREATER THAN 2,200 LBS/MONTH	
INITIALS	

DESIGNATED FACILITY NAME AND ADDRESS SAFETY-KLEEN SYSTEMS, INC.

I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS  
USA EPA ID NO.  
STATE ID NO.

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE #
AMOUNT \$		
PREVIOUS CREDIT CARD NO		
CREDIT CARD NO		
CUSTOMER REFERENCE		

LDR MESSAGE	
MANIFEST CODE	SEQ #
	3 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT. PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION. THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS.

"This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

Print Customer Name  
By: \_\_\_\_\_  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	833
WASTE MIN (FROM ABOVE)	
TOTAL DUE	
DO NOT WRITE IN THE AREA BELOW	
M003234091 000333	

SERVICE AND SALES ACKNOWLEDGMENT



5400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-668-5740  
www.safety-kleen.com



DUNS NO. 05-387-6551

FED. ID NO. 389000119

CUSTOMER

FOR SERVICE CALL	BRANCH MANAGER	DOC. EXP.	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
626-575-4685	JOHNNY JIMENEZ		06		M003234983

CREDIT CODE	PREVIOUS BALANCE	BAL OVER 90 DAYS

BUSINESS TYPE	CHAIN	OUTER COUNTY	SVC. P/C	PROD. P/C

LOCATION	TAX EXEMPTION NO.
708806	

SERVICE DATE	SALES REP NO.	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
1/21/06	431101				PW				

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/REPAIRS	QUAN.	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIAL)	CHANGE SCH. DATE (YY MM)	INV CODE	PROMO NO	MSD GIVE
									CLEAN SPENT # OF CONT. SK DOT							
1																
2																
3	88888	213668	270.75	1	270.75		270.75									
4	100009		10.85	1	10.85		10.85									
5	7215		108.00	2	216.00	17.82	233.82									
6	88888	2113616	432.50	1	432.50		432.50									
7																
8																
9																
0																
1																
2																

TOTAL-SERVICE/PRODUCTS

CHECK APPROPRIATE BOXES	MACHINE CONDITION & CLEANLINESS	GOOD	POOR	DECALS IN PLACE AND LEGIBLE	YES	NO	MACHINE PROPERLY GROUNDED	YES	NO
	LAMP ASSEMBLY CONDITION			FUSIBLE LINK INSTALLED			LOCAL PHONE NO. STICKER AFFIXED TO MACHINE		
				EMERGENCY CLOSING OF LID UNOBSTRUCTED			SPENT SOLVENT MEETS ACCEPTANCE CRITERIA		

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)  
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III  
(D03B)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)  
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)  
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR USEPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)

12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
			839
			941
			3311

I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES  
0 TO 220 LBS./MONTH  
INITIALS  
220 LBS. TO 2,200 LBS./MONTH  
INITIALS  
GREATER THAN 2,200 LBS./MONTH  
INITIALS

DESIGNATED FACILITY NAME AND ADDRESS SAFETY-KLEEN SYSTEMS, INC.

I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS  
USA EPA ID NO.  
STATE ID NO.

CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO.
CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
INVOICE #	AMOUNT \$	INVOICE #
PREVIOUS CREDIT CARD NO.		

LDR MESSAGE	
MANIFEST CODE	SEQ #
	65 D

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

Print Customer Name  
Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	
DO NOT WRITE IN THE AREA BELOW	
M003234983 431101	

SERVICE AND SALES ACKNOWLEDGMENT

TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY  
P.O. Box 13087  
Austin, Texas 78711-3087



7-088-06

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670		0000001160 AIR LIQUIDE O5C	<div style="background-color: black; width: 100%; height: 100%;"></div>		
4. Generator's Phone ( 562 ) 945-1383					
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC	6. US EPA ID Number TXR000050930				
7. Transporter 2 Company Name	8. US EPA ID Number				
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		000618 TXD077603371			
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
	a. WASTE OIL AND ABSORBENT MIXTURE (NOT USDOT HAZARDOUS MATERIAL)	001	DM	300 P	OUTSIDE
	b. NON RCRA HAZARDOUS WASTE, LIQUID	001	DM	300 P	OUTSIDE
	c. NON RCRA HAZARDOUS WASTE, LIQUID		DM		OUTSIDE
	d. NON-RCRA HAZARDOUS WASTE LIQUID (OIL)		DM		OUTSIDE
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 1033 B: 37802 C: 37802 D: 142051					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labeled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed / Typed Name		Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space DICE 01242					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19					
Printed / Typed Name		Signature		Date	
				Month Day Year	



Please print or type. (Form designed for use on 12-pitch typewriter.)

Form Approved. OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. <b>30912</b>		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>LANITA FLO SPRINGS</b>				A. State Manifest Document Number <b>01230072</b>			
4. Generator's Phone <b>(505) 445-1344</b>				B. State Hazardous Waste Site ID Number <b>41038</b>			
5. Transporter 1 Company Name <b>TRIAD</b>				C. State Hazardous Waste Site ID Number <b>41038</b>			
6. US EPA ID Number <b>OKD981588791</b>				D. State Hazardous Waste Site ID Number <b>41038</b>			
7. Transporter 2 Company Name <b>TRIAD</b>				E. State Hazardous Waste Site ID Number <b>41038</b>			
8. US EPA ID Number <b>OKD981588791</b>				F. State Hazardous Waste Site ID Number <b>41038</b>			
9. Designated Facility Name and Site Address <b>LANITA FLO SPRINGS</b>				G. State Hazardous Waste Site ID Number <b>41038</b>			
10. US EPA ID Number <b>OKD981588791</b>				H. Facility Phone <b>840 483-5200</b>			
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.	
a.		001		00300		UTS4091	
b.		001	DF	00300		UTS1191	
c.						UTS1141	
d.						UTS1061	
15. Special Handling Instructions and Additional Information <b>EMERGENCY RESP 800-468-1760. IF UNIDENTIFIABLE RETURN TO GENERATOR OR COPY AUTH D TO USE SUBSEQUENT. ALSO 1-847-41034-1161</b>				16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labeled in accordance with applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.			
Printed / Typed Name <b>Art Traylor</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/12/06</b>			
17. Transporter 1 Acknowledgement or Receipt of Materials		Printed / Typed Name <b>Thor Chazaro</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/12/06</b>	
18. Transporter 2 Acknowledgement or Receipt of Materials		Printed / Typed Name <b>GORTON BANDCORN</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/12/06</b>	
19. Discrepancy Indication Space <b>DICE 01243</b>							
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19		Printed / Typed Name <b>ES Smith</b>		Signature <i>[Signature]</i>		Month Day Year <b>10/26/06</b>	







Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD SANTA FE SPRINGS CA 90670		4. Generator's Phone (562) 945-1383	5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC.	6. US EPA ID Number TXR000050930	7. Transporter 2 Company Name
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371			
11A HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No. Type	13. Total Quantity	14. Unit Wt/Vol	
X	a. HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC, MERCURY) 9, NA3077, PGIII ERG#171	DM		P	
	b. NON RCRA HAZARDOUS WASTE, SOLID	DM	260	P	
	c. NON RCRA HAZARDOUS WASTE, LIQUID	DM		P	
	d. NON RCRA HAZARDOUS WASTE, SOLID	DM		P	
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOTS: A: 7397 B: 37797 C: 37802 D: 37797					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed / Typed Name		Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space DICE 01245					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed / Typed Name		Signature		Date	

Form Approved. OMB No 2050-0039

**GENERATOR**

~~CONFIDENTIAL~~

MM190190 16-FEB-1993

REF ID: A635079

[illegible]

SERVICE DATE	SALES REP NO.	CUSTOMER P.O. NUMBER	CUSTOMER PHONE #	TAX CODE	HANDLING CODE	ASSOC CODE	SERVICE TAX	C.O.M.S. TAX	PRODUCT TAX
12/00	43101				PW				

**DICE 01247**

**TOTAL-SERVICE/PRODUCTS**

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS AND ID)	12. CONTAINERS NO.	13. TOTAL QUANTITY	14. UNIT WT/VOL	15. SK DOT NUMBER	16. BULK	17. OTHER
HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III				839		
(039)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)						
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR SEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)				941		
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR SEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)						
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR SEPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)				3311		

I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES:  
☐ 0 TO 220 LBS./MONTH  
☐ 220 LBS TO 2,200 LBS./MONTH  
☐ GREATER THAN 2,200 LBS./MONTH

INITIALS  
 \_\_\_\_\_  
 INITIALS  
 \_\_\_\_\_  
 INITIALS  
 \_\_\_\_\_

SALES ACKNOWLEDGMENT

DESIGNATED FACILITY NAME AND ADDRESS SAFETY-KLEEN SYSTEMS, INC.

MANIFEST NO.	
50129389	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	64 D

	I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS
--	--

USA EPA ID NO.

STATE ID NO.

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	

DO NOT WRITE IN THE AREA BELOW

MO03234982  
431101

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

"This is to certify that the above-named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

\_\_\_\_\_

Print Customer Name AR T. FLYNN

By: [Signature]  
Customer's Authorized Representative

THIS AGREEMENT CONTINUES ON THE REVERSE SIDE

**SERVICE AND SALES ACKNOWLEDGMENT**  
**PART 1367 (Rev 05/04)**



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's Name and Mailing Address	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address		8832 DICE ROAD SANTA FE SPRINGS CA 90670 562 945-1383				
4. Generator's Phone ( )		SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR00050990		
5. Transporter 1 Company Name		7. Transporter 2 Company Name		8. US EPA ID Number		
9. Designated Facility Name and Site Address		000618 SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371		
11A. HM		11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)		12. Containers No.	13. Total Quantity	14. Unit Wt/Vol
X	a.	RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		
X	b.	WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		
X	c.	WASTE AEROSOLS, FLAMMABLE 2.1 UN1950 (ERG#126)		DM		
X	d.	RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR) IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 163141 B: 20332 C: 20335 D: 163141						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed / Typed Name		Signature		Month Day Year 01/12/10		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature		Date 01/12/10		
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date 01/12/10		
19. Discrepancy Indication Space		DICE 01248				
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19		Date Month Day Year				
Printed / Typed Name		Signature		Month Day Year		

TEXAS COMMISSION ON  
ENVIRONMENTAL QUALITY  
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Austin, Texas 78711-3087



7-088-06

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Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD ATTN: ARRON TESCH SANTA FE SPRINGS CA 90670		4. Generator's Phone (562) 945-1383	5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC	6. US EPA ID Number TXR0000050930	A. State Manifest Document Number S 01039677
7. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		8. US EPA ID Number TXD077603371	9. Transporter 2 Company Name RAID	10. US EPA ID Number TXD077603371	B. State Manifest Document Number S 01039677
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
X	a. HAZARDOUS WASTE SOLID, N.O.S. (ARSENIC, MERCURY) 9, NA3077, PGIII ERG#171	1	DM	P	OUTS4091
	b. NON RCRA HAZARDOUS WASTE, SOLID	1001	DM	P	OUTS4091
	c. NON RCRA HAZARDOUS WASTE, LIQUID		DM	P	OUTS5191
	d. NON RCRA HAZARDOUS WASTE, SOLID		DM	P	
J. Additional Descriptions for Materials Listed Above IA) D009 D004 IB) NONE IC) NONE ID) NONE					K. Handling Codes for Wastes Listed Above H04
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 7397 B: 37797 C: 37802 D: 37797					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed / Typed Name ANITA MACIAS		Signature Anita Macias		Month Day Year 1/1/96	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature [Signature]		Month Day Year 1/1/96	
Printed / Typed Name Jou MARI		Signature [Signature]		Month Day Year 1/1/96	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature [Signature]		Month Day Year 1/1/96	
Printed / Typed Name GELSON P. SELLER		Signature [Signature]		Month Day Year 1/1/96	
19. Discrepancy Indication Space DICE 01249					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19					
Printed / Typed Name Woberty		Signature Woberty		Month Day Year 11/26/05	

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7-088-06

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<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. CAL000021160		Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.			
3. Generator's Name and Mailing Address AIR LIQUIDE OSC 8832 DICE ROAD ATTN: ARRON TESCH SANTA FE SPRINGS CA 90670 4. Generator's Phone (562) 945-1383					A. State Manifest Document Number <b>S 01039533</b>				
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC					B. State Generator's ID D0006				
6. US EPA ID Number TXR000050930					C. State Transporter's ID 87109				
7. Transporter 2 Company Name					D. Transporter's Phone 800 869-5640				
8. US EPA ID Number					E. State Transporter's ID				
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208					F. Transporter's Phone				
10. US EPA ID Number TXD077603371					G. State Facility ID 65124				
					H. Facility's Phone 940 483-5200				
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)				12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	15. Waste Code
a	WASTE OIL AND ABSORBENT MIXTURE (NOT USDOT HAZARDOUS MATERIAL)				601	DM	600 + 0	P	OUTS4001
b	NON RCRA HAZARDOUS WASTE, LIQUID					DM		P	OUTS1151
c	NON RCRA HAZARDOUS WASTE, LIQUID					DM		P	OUTS1151
d	NON-RCRA HAZARDOUS WASTE LIQUID (OIL)					DM		P	OUTS2061
J. Additional Descriptions for Materials Listed Above IA) NONE 4491 IB) NONE IC) NONE ID) NONE					K. Handling Codes for Wastes Listed Above				
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 81300, 40355, 41015, 40582, 84815 SKDOT# A: 1033 B: 37802 C: 37802 D: 147051									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford									
Printed / Typed Name ARRON TESCH					Signature [Signature]			Month Day Year 10/1/95	
17. Transporter 1 Acknowledgement of Receipt of Materials					Signature [Signature]			Date Month Day Year 10/1/95	
18. Transporter 2 Acknowledgement or Receipt of Materials					Signature [Signature]			Date Month Day Year 10/1/95	
19. Discrepancy Indication Space  DICE 01250									
Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19									
Printed / Typed Name					Signature			Date Month Day Year	

10/1/95 00009021437

White - original B10001935455

Pink-TSD Facility Yellow-Transporter Green-Generator's first copy

C10002134316

D10002131116





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<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No CA1000021150	Manifest Document No 39596	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address 8832 DICE ROAD ATTN: ARRON TESCH SANTA FE SPRINGS 562 945-1383		AIR LIQUIDE OSC CA 90670		A. State Manifest Document Number S 01039546	
4. Generator's Phone		5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		B. State Generator's ID D0006	
		6. US EPA ID Number TXR000050930		C. State Transporter's ID D0006	
7. Transporter 2 Company Name TRIAD		8. US EPA ID Number OKD 981588791		D. State Transporter's ID D0006	
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371		E. State Facility ID 65123	
				F. Facility Phone 940 483 5200	
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Weight
a	NON REGULATED SOLID	DM	P	31	91
b	USED OIL AND WATER MIXTURE (NOT USED DOT HAZARDOUS MATERIAL)	DM	P	00	191
c	NON RCRA HAZARDOUS WASTE, LIQUID	DM	P	00	191
d	NON RCRA HAZARDOUS WASTE, SOLID	DM	P	00	191
J. Additional Descriptions for Materials Listed Above A. NONE B. NONE C. NONE D. NONE		K. Handling Codes for Wastes Listed Above ① HM ② HX ③ PO ④ TO ⑤ W			
15. Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 81300, 40355, 41015, 40582, 84815 SKDOT# A: 25383 B: 1002 C: 37802 D: 37797					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed / Typed Name Ariz Trujillo		Signature 		Month Day Year 08/3/05	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature 		Month Day Year 08/3/05	
Printed / Typed Name Jesse Williams		Signature 		Month Day Year 08/3/05	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature 		Month Day Year 09/06/05	
Printed / Typed Name A.L. Curry		Signature 		Month Day Year 09/06/05	
19. Discrepancy Indication Space DICE 01251					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19					
Printed / Typed Name Bloodgame		Signature 		Month Day Year 09/09/05	

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No CAL000021160	Manifest Document No 34535	2 Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address AIR LIQUIDE 05C 8832 DICE ROAD ATTN: ARRON TESCH SANTA FE SPRINGS CA 90670				A. State Manifest Document Number S 01039535		
4. Generator's Phone (562) 945-1383				B. State Generator's ID D0006		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930		C. State Transporter's ID 057109		
7. Transporter 2 Company Name <i>Truck Transport</i>		8. US EPA ID Number 10K0981577891		D. Transporter's Phone 800 669 5040		
9. Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371		E. State Transporter's ID 01078		
				F. Transporter's Phone 800 669 5040		
				G. State Facility ID 05724		
				H. Facility's Phone 940 483-5200		
11A. HM	11 US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12 Containers No	Type	13 Total Quantity	14 Unit Wt/Vol	Waste No
X	a. <del>WASTE AEROSOLS 2.1 UN1950 (ERG#126)</del>		DM		P	OUTS801H
X	b. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)	001	DM	00460	P	OUTS219H
X	c. <del>WASTE AEROSOLS, FLAMMABLE 2.1 UN1950 (ERG#126)</del>		DM		P	OUTS409H
X	d. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		P	OUTS209H
J. Additional Descriptions for Materials Listed Above 1A) D001 1B) D001 D005 D006 D007 D008 D035 1C) D001 ID) F003 F005 D001				K. Handling Codes for Wastes Listed Above H001		
15 Special Handling Instructions and Additional Information MFST R/T#105450461 0002-2155-24 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 81300, 40355, 41015, 40582, 84815 SKDOT# A: 20332 B: 163141 C: 20335 D: 163141						
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed / Typed Name AR Truejillo		Signature <i>[Signature]</i>		Month Day Year 06/02/05		
17 Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>[Signature]</i>		Month Day Year 06/02/05		
18 Transporter 2 Acknowledgement of Receipt of Materials		Signature <i>[Signature]</i>		Month Day Year 06/02/05		
19 Discrepancy Indication Space <div style="text-align: right;">DICE 01252</div>						
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19						
Printed / Typed Name <i>[Signature]</i>		Signature <i>[Signature]</i>		Month Day Year 06/09/05		

GENERATOR

TRANSPORTER

FACILITY





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UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No. CAL000021160	Manifest Document No	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address 8832 DICE ROAD ATTN: ARRON TESCH SANTA FE SPRINGS CA 90670				A. State Manifest Document Number <b>S 01039535</b>		
4. Generator's Phone (562) 945-1383				B. State Generator's ID <b>D0006</b>		
5. Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930		C. State Transporter's ID <b>87109</b>		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone <b>800 869-5840</b>		
9. Designated Facility Name and Site Address 000618 SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10. US EPA ID Number TXD077603371		E. State Transporter's ID <b>65129</b>		
				F. Transporter's Phone <b>940 463-5200</b>		
11A HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
X	a. WASTE AEROSOLS 2.1 UN1950 (ERG#126)		DM		P	OUTS4010
X	b. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)	001	DM	001/00	P	OUTS2100
X	c. WASTE AEROSOLS - FLAMMABLE 2.1 UN1950 (ERG#126)		DM		P	OUTS4000
X	d. RO WASTE PAINT RELATED MATERIAL 3 UN1263 PG III (D001) (ERG#128)		DM		P	OUTS2000
J. Additional Descriptions for Materials Listed Above 1A) D001 1B) D001 D005 D006 D007 D008 D035 1C) D001 1D) F003 F005 D001				K. Handling Codes for Wastes Listed Above		
15. Special Handling Instructions and Additional Information MFST R/T#105450461 0002-2155-24 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 81300, 40355, 41015, 40582, 84815 SKDOT# A: 20332 B: 163141 C: 20335 D: 163141						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed / Typed Name <i>Arnon Tesch</i>			Signature <i>[Signature]</i>		Month Day Year <i>11 06 05</i>	
17. Transporter 1 Acknowledgement of Receipt of Materials						Date
Printed / Typed Name <i>[Signature]</i>			Signature <i>[Signature]</i>		Month Day Year <i>11 06 05</i>	
18. Transporter 2 Acknowledgement or Receipt of Materials						Date
Printed / Typed Name			Signature		Month Day Year	
19. Discrepancy Indication Space  <b>DICE 01253</b>						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19						
Printed / Typed Name			Signature		Month Day Year	

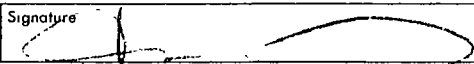
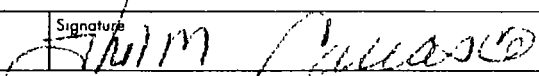
IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No	Manifest Document No	2 Page 1 of 1	Information in the shaded areas is not required by Federal law
3 Generator's Name and Mailing Address <b>AIR LIQUIDE OSC</b> <b>8832 DICE ROAD</b> <b>SANTA FE SPRINGS CA 90670</b> <b>562 945-1383</b>		1 Generator's US EPA ID No <b>CA060001100</b>	Manifest Document No <b>60814</b>	A State Manifest Document Number <b>24355212</b>	
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS INC.</b>		6 US EPA ID Number <b>TXR000050430</b>	C State Transporter's ID (Reserved)	D Transporter's Phone <b>800 669-5840</b>	
7 Transporter 2 Company Name		8 US EPA ID Number	E State Transporter's ID (Reserved)	F Transporter's Phone	
9 Designated Facility Name and Site Address <b>DEMENNO/KERDOON</b> <b>2000 NORTH ALAMEDA STREET</b> <b>COMPTON CA 90222</b>		10 US EPA ID Number <b>CA080013352</b>	G State Facility's ID <b>CA080013352</b>	H Facility's Name	
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) <b>NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)</b>		12 Containers No Type <b>001 TT 004110 G</b>	13 Total Quantity Quantity <b>310.537-7100</b>	14 Waste Number State EPA/Other <b>222</b>	
15 Special Handling Instructions and Additional Information <b>EMERGENCY RESP#800-468-1760 24HR</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIER, AS NECESSARY.</b>					
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed/Typed Name <b>ART Trujillo</b>		Signature 		Month Day Year <b>05/19/05</b>	
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <b>THOR CARRASCO</b>		Signature 		Month Day Year <b>05/19/05</b>	
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19 Discrepancy Indication Sp <b>QUANTITY DISCREPANCY GREATER THAN 10% VARIATION RECONCILED WITH GENERATOR/TRANSPORTER ON RECEIVED 332 GALLONS</b>					
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name <b>OLG GARCIA</b>		Signature 		Month Day Year <b>05/19/05</b>	

DO NOT WRITE BELOW THIS LINE.

Yellow

TSDF SENDS THIS COPY TO GENERATOR WITHIN 30 DAYS  
(Generators who submit hazardous waste for transport out-of-state, produce completed copy of this copy and send to DTSC within 30 days.)

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No	Manifest Document No	2 Page 1 of 1	Information in the shaded areas is not required by Federal law	
3 Generator's Name and Mailing Address <b>AIR LIQUIDE O5C</b> <b>8832 DICE ROAD</b> <b>SANTA FE SPRINGS CA 90670</b>		1 Generator's US EPA ID No <b>CAL000021160</b>	Manifest Document No <b>60814</b>	A State Manifest Document Number <b>24355212</b>		
5 Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS INC.</b>		6 US EPA ID Number <b>TXR000050930</b>	C State Transporter's ID (Reserved)			
7 Transporter 2 Company Name		8 US EPA ID Number	D Transporter's Phone			
9 Designated Facility Name and Site Address <b>DEMENNO/KERDOON</b> <b>2000 NORTH ALAMEDA STREET</b> <b>COMPTON CA 90222</b>		10 US EPA ID Number <b>CAT080013352</b>	E State Transporter's ID (Reserved)			
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) <b>NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)</b>		12 Containers No. Type <b>001 TT</b>	13 Total Quantity <b>310</b>	Unit <b>537-7100</b>	14 Waste Number State <b>222</b> EPA/Other	
J Additional Descriptions for Materials Listed Above		K Handling Codes for Wastes Listed Above				
15 Special Handling Instructions and Additional Information <b>EMERGENCY RESP#800-468-1760 24HR</b> <b>SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIER, AS NECESSARY.</b>						
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed/Typed Name <b>Art Trujillo</b>		Signature 		Month Day Year <b>05/19/95</b>		
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <b>Ther Carance</b>		Signature 		Month Day Year <b>05/19/95</b>		
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year		
19 Discrepancy Indication Space  <b>DICE 01255</b>						
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19 Printed/Typed Name		Signature		Month Day Year		

DO NOT WRITE BELOW THIS LINE.

# Certificate of Treatment/Recycling

ISSUED TO

AIR LIQUID AMERICA

FOR

MANIFEST NUMBER 24355212 DATE RECEIVED 5/19/2005

The aqueous waste received on the above manifest will be treated to standards mandated by the FEDERAL CLEAN WATER ACT and to effluent requirements established by the Sanitation Districts of Los Angeles County. Waste treatment and recycling is performed under permits granted to DeMENNO/KERDOON, a California Corporation, by the California Department of Toxic Control (DTSC), in coordination with the Environmental Protection Agency, in accordance with the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, together with applicable federal and state regulations including but not limited to waste discharge requirements established by the Sanitation Districts of Los Angeles County.

When the above described waste material is accepted by DeMENNO/KERDOON and treated/recycled and the aqueous phase discharged for further treatment by the Sanitation Districts, the certificate holder's responsibility for the waste material is eliminated under both RCRA and Proposition 65. Upon request, DeMENNO/KERDOON will issue this certificate that all waste material has been handled in accordance with applicable permits and the certificate holder's liability has been terminated.

DeMENNO/KERDOON

"Compliance Through Recycling"

By:

Date: 5/31/2005

  
Cyrus Pourhassanian  
Laboratory Manager

2000 North Alameda Street ☐ Compton ☐ California ☐ 90222  
Telephone (310) 537-7100 ☐ Facsimile (310) 639-2946

DICE 01256

068-06

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802 WITHIN CALIFORNIA, CALL 1-800-852-7550

24253913

GENERATOR

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No	Manifest Document No	2 Page 1 of 1	Information in the shaded areas is not required by Federal law
3 Generator's Name and Mailing Address AIR LIQUID 8932 DIERD ANTA FE SPRINGS, W. 107		6 US EPA ID Number TXR000050930		A State Manifest Document Number 24253913	
4 Generator's Phone ( )		8 US EPA ID Number		B State Generator's ID	
5 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS INC.		6 US EPA ID Number		C State Transporter's ID (Reserved)	
7 Transporter 2 Company Name		8 US EPA ID Number		D Transporter's Phone 800-669-5840	
9 Designated Facility Name and Site Address DEMENNO/KERDOON 2000 NORTH ALAMEDA STREET COMPTON CA 90222		10 US EPA ID Number CAT080013352		E State Transporter's ID (Reserved)	
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12 Containers No Type		13 Total Quantity 14 Unit Wt/Vol	
a NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)		001 TT 0200		G	
b					
c					
d					
J Additional Descriptions for Materials Listed Above		K Handling Codes for Wastes Listed Above		1 Waste Number 222	
15 Special Handling Instructions and Additional Information EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.		MFST R/T#105888211 0-000-00		EPA/Other	
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations		SKDOT# A: 3287 B: C: D:		State	
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford		Printed/Typed Name J. T. Trull		Signature [Signature]	
17 Transporter 1 Acknowledgement of Receipt of Materials		Printed/Typed Name T. R. R. R.		Signature [Signature]	
18 Transporter 2 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature	
19 Discrepancy Indication Space		DICE 01257		Month Day Year	
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19		Printed/Typed Name		Signature	

DO NOT WRITE BELOW THIS LINE.

7-088-06

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1 Generator's US EPA ID No CA40900071729-53,9,13		Manifest Document No		2 Page 1 of 1		Information in the shaded areas is not required by Federal law	
3 Generator's Name and Mailing Address AIR LIQUID -- 8832 DUE RD SANTA FE SPRINGS, CA 90707				A. State Manifest Document Number 24253913					
4 Generator's Phone 562/613-1150				B. State Generator's ID					
5 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS INC.				6 US EPA ID Number TXH000050930		C. State Transporter's ID (Reserved)			
7 Transporter 2 Company Name				8 US EPA ID Number		E. State Transporter's ID (Reserved) 800-669-5640			
9 Designated Facility Name and Site Address DEMENNO/KERDOON 2000 NORTH ALAMEDA STREET COMPTON CA 90222				10 US EPA ID Number CAT080013352		G. State Facility's ID CA 110800/13352			
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)				12 Containers No Type		13. Total Quantity		14 Unit Wt/Vol	
a NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)				001 TT		6200		G	
b THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE DEMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED OUR EPA NUMBER IS CAT080013352.									
c									
d									
J Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above a 101 b c d					
15 Special Handling Instructions and Additional Information P.0750094223 MFST R/T#105888211 0-000-00 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.									
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents and quantity are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name ART Truitt				Signature				Month Day Year 04/01/95	
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name THOMAS (HARRIS)				Signature				Month Day Year 04/01/95	
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature				Month Day Year	
19 Discrepancy Indication Space  DICE 01258									
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name SCOTT P SVAY									
Signature				Month Day Year 04/01/95					

DO NOT WRITE BELOW THIS LINE.

Yellow

TSDF SENDS THIS COPY TO GENERATOR WITHIN 30 DAYS  
(Generators who submit hazardous waste for transport out-of-state, produce completed copy of this copy and send to DTSC within 30 days.)

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802 WITHIN CALIFORNIA, CALL 1-800-852-7550

GENERATOR

TRANSPORTER

FACILITY



3400 Legacy Drive, Cluster II, B3 QUO-669-5740  
 Plano, Texas 75024 www.safety-kleen.com  
 CUSTOMER NO



DUNS NO 05-397-6551 FED ID NO 75-2178928

CUSTOMER

FOR SERVICE CALL		BRANCH MANAGER		DOC EXP		SCHEDULED SERVICE WEEK		SCHEDULED TERRITORY		REFERENCE NUMBER	
										M002687808	
CITY CODE		PREVIOUS BALANCE		BAL OVER 30 DAYS							
BUSINESS TYPE		CHAIN		OUTER COUNTY		SVC P/C		PROD P/C			
LOCATION		TAX EXEMPTION NUMBER									

CUSTOMER NO

2215524  
 AIR LIQUID  
 8032 DICE RD.  
 SANTA FE SPRINGS, CA 90670

BILL TO

SERVICE DATE		SALES REP NO		CUSTOMER P.O. NUMBER		CUSTOMER PHONE #		TAX CODE		HANDLING CODE		ASSOC CODE		SERVICE TAX		COMS TAX		PRODUCT TAX	
4-1-04		431101																	

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	UNIT PRICE	QUANTITY	CHARGE	SALES TAX	TOTAL CHARGE	CHLORINE TEST RESULTS		SK DOT NUMBER	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) (INITIAL)	CHANGE SCH DATE (YY WW)	PROMO NO	RELEASE NO
								HALOGEN TESTER PASS	FAIL							
1																
2	10902		395	200	395		395			3287						CALL IN
3																
4																
5																
6																
7																
8																
9																

TOTAL-SERVICE/PRODUCTS

TANK CAPACITY

TRANSPORTER

DATE 04/01/05

GENERATOR STATUS: CHECK ONLY ONE BOX BELOW

MANIFEST NO.

USEPA TRANSPORTER ID NO.

GENERATOR HAZARDOUS WASTE CLASSIFICATION *	VEHICLE FLUIDS ONLY	OTHER NON-VEHICLE FLUIDS	1 NO PREQUAL REQUIRED, NO HALOGEN TEST
CESQG	<input type="checkbox"/> 1	<input type="checkbox"/> 3	2 NO PREQUAL REQUIRED, HALOGEN TEST AT PICK UP
SQG/LQG	<input type="checkbox"/> 2	<input type="checkbox"/> 4	3 PREQUAL REQUIRED, NO HALOGEN TEST
			4 PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP

24253913

TXR000050930

GENERATOR STATE ID NO.

CAL 000021160

PRINT NAME	SIGNATURE
FACILITY	DATE
PRINT NAME	SIGNATURE

11. US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)

OIL/WATER/SLUDGE, NON-RCRA HAZARDOUS WASTE  
 (NOT USDOT REGULATED)

12 CONTAINERS NO.	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
11	200	G	3287



INTERMEDIATE FACILITY NAME AND ADDRESS

SAFETY-KLEEN SYSTEMS,

USA EPA ID NO

STATE ID NO.

PAYMENT RECEIVED SECTION	CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
	CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE
	INVOICE #	AMOUNT \$	<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
	INVOICE #	AMOUNT \$	
PREVIOUS CREDIT CARD NO	CREDIT CARD NO	AMEX VISA MC	EXP. DATE
CUSTOMER REFERENCE INFORMATION			

IN THE EVENT OF AN EMERGENCY  
 1-800-466-1760 (24 hours)

CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION

Customer certifies that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Environmental Protection Agency and the U.S. Department of Transportation

ADDITIONAL TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS DOCUMENT ARE INCORPORATED HEREWITH MADE A PART HEREOF.

Print Name AR Trujillo

GENERATORSHIPPER DESIGNATED REPRESENTATIVE SIGNATURE



TOTAL DUE 395.00  
 DO NOT WRITE IN THE AREA BELOW

M002687808

431101

SEE REVERSE SIDE FOR IMPORTANT INFORMATION

OIL RECOVERY SERVICE/  
 SALES ACKNOWLEDGMENT

PART NO 1363 (5/04)

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No.	Manifest Document No.	2 Page 1 of 1	Information in the shaded areas is not required by Federal law
3 Generator's Name and Mailing Address 562 945 1383 412 LIQUID 8832. DICE RD JAME FE SPRINGS CA 90060		A State Manifest Document Number 24253489		B State Generator's ID	
4 Generator's Phone ( )		C State Transporter's ID (Reserved)		D Transporter's Phone	
5 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS INC.		6 US EPA ID Number TXR000050950		E State Transporter's ID (Reserved) 669-5840	
7 Transporter 2 Company Name		8 US EPA ID Number		F Transporter's Phone	
9 Designated Facility Name and Site Address DEMENNO/KERDOON 050122 2000 NORTH ALAMEDA STREET COMPTON CA 90222		10 US EPA ID Number CAT080013352		G State Facility's ID AT08003352	
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12 Containers No Type		13 Total Quantity 310 US 17-7100	
a NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)		091 TT 6600		State EPA/Other 22	
b THIS WASTE STREAM HAS BEEN QUALIFIED FOR RECYCLING/TREATMENT AT THE				State EPA/Other	
c DeMENNO/KERDOON FACILITY IN COMPTON, CALIFORNIA. THIS FACILITY HAS THE NECESSARY				State EPA/Other	
d PERMITS TO RECEIVE YOUR WASTE STREAM AS QUALIFIED. OUR EPA NUMBER IS CAT080013352.				State EPA/Other	
J Additional Descriptions for Materials Listed Above 10 35 87330		K Handling Codes for Wastes Listed Above a 101 b c d			
15 Special Handling Instructions and Additional Information P.O. 7500 MFST R/T#105766018 O-000-00 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.					
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this manifest are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name A. J. Taylor		Signature 		Month Day Year 01/21/15	
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name THE R (HRRASCO) Signature Shu M (HRRASCO) Month Day Year 1/21/15					
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name QUANTITY DISCREPANCY GREATER THAN 10% VARIATION RECONCILED WITH GENERATOR/TRANSPORTER ON 02-24-15 WITH 426 OF Safety-Kleen RECEIVED 426 GALLONS					
19 Discrepancy Information					
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name Larry Maxwell Signature L M Maxwell Month Day Year 01/21/15					

DO NOT WRITE BELOW THIS LINE.

Yellow

TSDF SENDS THIS COPY TO GENERATOR WITHIN 30 DAYS  
(Generators who submit hazardous waste for transport out-of-state, produce completed copy of this copy and send to DTSC within 30 days)



IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No 7-088-06 CA400007116053489	Manifest Document No 2 Page 1	Information in the shaded areas is not required by Federal law	
3 Generator's Name and Mailing Address AIR LIQUID 562 945 1393 8432. DICE RD WATER FE SPRINGS CA 90607			A. State Manifest Document Number 24253489		
4 Generator's Phone (562) 244-2125			B. State Generator's ID		
5 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS INC.			C. State Transporter's ID (Reserved)		
6 US EPA ID Number TXR000050980			D. Transporter's Phone		
7 Transporter 2 Company Name			E. State Transporter's ID (Reserved)		
8 US EPA ID Number			F. Transporter's Phone		
9 Designated Facility Name and Site Address DEMENNO/KERDOON 2000 NORTH ALAMEDA STREET COMPTON CA 90222			G. State Facility's ID 11A70X003352		
10 US EPA ID Number CATQ80013352			H. Facility's Phone		
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)			12 Containers No Type	13 Total Quantity	14 Waste Number Wt/Vol
a NON-RCRA HAZARDOUS WASTE LIQUID OIL, WATER, SLUDGE (NOT DOT REGULATED)			001 TT	6600 G	State EPA/Other 222
b					State EPA/Other
c					State EPA/Other
d					State EPA/Other
15 Additional Descriptions for Materials Listed Above			K. Handling Codes for Wastes Listed Above a 101 b c d		
16 Special Handling Instructions and Additional Information MFST R/T#105766018 0-000-00 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.					
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this manifest are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name K. M. T. T. T.			Signature 		Month Day Year 01/21/85
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name THE K. M. T. T. T.			Signature 		Month Day Year 01/21/85
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name			Signature		Month Day Year
19 Discrepancy Indication Space  DICE 01261					
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name			Signature		Month Day Year

DO NOT WRITE BELOW THIS LINE.

# Certificate of Treatment/Recycling

ISSUED TO

AIR LIQUID AMERICA

FOR

MANIFEST NUMBER 24253489

DATE RECEIVED 2/21/2005

The aqueous waste received on the above manifest will be treated to standards mandated by the FEDERAL CLEAN WATER ACT and to effluent requirements established by the Sanitation Districts of Los Angeles County. Waste treatment and recycling is performed under permits granted to DeMENNO/KERDOON, a California Corporation, by the California Department of Toxic Control (DTSC), in coordination with the Environmental Protection Agency, in accordance with the provisions of the Resource Conservation and Recovery Act (RCRA) of 1976, together with applicable federal and state regulations including but not limited to waste discharge requirements established by the Sanitation Districts of Los Angeles County.

When the above described waste material is accepted by DeMENNO/KERDOON and treated/recycled and the aqueous phase discharged for further treatment by the Sanitation Districts, the certificate holder's responsibility for the waste material is eliminated under both RCRA and Proposition 65. Upon request, DeMENNO/KERDOON will issue this certificate that all waste material has been handled in accordance with applicable permits and the certificate holder's liability has been terminated.

DeMENNO/KERDOON

"Compliance Through Recycling"

By: 

Cyrus Pourhassanian  
Laboratory Manager

Date: 3/7/2005

2000 North Alameda Street ☐ Compton ☐ California ☐ 90222  
Telephone (310) 537-7100 ☐ Facsimile (310) 639-2946

DICE 01262



CUSTOMER GENERATOR

2236080 626-575-4685

JOHNNY JIMENEZ

05 M002615102

AIR LIQUID  
8832. DICE RD  
SANTE FE SPRINGS

BILL TO

FOR SERVICE CALL	BRANCH MANAGER	DOC EXP	SCHEDULED SERVICE WEEK	SCHEDULED TERRITORY	REFERENCE NUMBER
			CREDIT CODE	PREVIOUS BALANCE	BAL OVER 60 DAYS
			BUSINESS TYPE	CHAIN	OUTER COUNTY
				SVC P/C	PROD P/C
			LOCATION		
			TAX EXEMPTION NUMBER		

SERVICE DATE		SALES REP NO		CUSTOMER P O NUMBER			CUSTOMER PHONE #		TAX CODE		HANDLING CODE		ASSOC CODE		SERVICE TAX		C O M S TAX		PRODUCT TAX	
2-18-05		73/101					562 945 1383													
DEPT	SERVICES PRODUCT	SERIAL NUMBER	UNIT PRICE	QUANTITY	CHARGE	SALES TAX	TOTAL CHARGE	CHLORINE TEST RESULTS				SK DOT NUMBER	CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS)(INITIAL)	CHANGE SCH DATE (YR MON)	PROMO NO	RELEASE NO		
								HALOGEN TESTER PASS	HALOGEN TESTER FAIL	CHLOR-D TEST RESULTS (PPM)	TESTERS INITIALS									
								<input type="checkbox"/>	<input type="checkbox"/>											
2								<input type="checkbox"/>	<input type="checkbox"/>											
3	66667	L.I.Q	1.00	600	600		600	<input checked="" type="checkbox"/>	<input type="checkbox"/>			3287	12						4 dm 55	
4								<input type="checkbox"/>	<input type="checkbox"/>											
5	119703	TRK	225	1	225		225	<input type="checkbox"/>	<input type="checkbox"/>										3 large containers at pallets	
6								<input type="checkbox"/>	<input type="checkbox"/>											
7	119703	SOR	8.15	1	8.15		8.15	<input type="checkbox"/>	<input type="checkbox"/>											
8								<input type="checkbox"/>	<input type="checkbox"/>											
9								<input type="checkbox"/>	<input type="checkbox"/>											

TOTAL-SERVICE/PRODUCTS			833.15	TANK CAPACITY	TRANSPORTER	DATE	2/18/05
GENERATOR STATUS: CHECK ONLY ONE BOX BELOW				MANIFEST NO.	USEPA TRANSPORTER ID NO.	PRINT NAME	SIGNATURE
GENERATOR HAZARDOUS WASTE CLASSIFICATION *	VEHICLE FLUIDS ONLY	OTHER NON-VEHICLE FLUIDS	1 NO PREQUAL REQUIRED, NO HALOGEN TEST 2 NO PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP 3 PREQUAL REQUIRED, NO HALOGEN TEST 4 PREQUAL REQUIRED, HALOGEN TEST AT PICK-UP * REFER TO REVERSE SIDE FOR DEFINITIONS	TXR000050930		Ther Carrasco	Ther Carrasco
CESQG	<input type="checkbox"/> 1	<input type="checkbox"/> 3		GENERATOR USEPA ID NO.	GENERATOR STATE ID NO.	FACILITY	DATE
SQG/LQG	<input type="checkbox"/> 2	<input type="checkbox"/> 4		CAL 000021160			/ /
11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)				12 CONTAINERS NO		13 TOTAL QUANTITY	14 UNIT WT/VOL
OIL/WATER/SLUDGE, NON-RCRA HAZARDOUS WASTE				1		600	9
NOT USDOT REGULATED							3287
INTERMEDIATE FACILITY NAME AND ADDRESS				USA EPA ID NO.		STATE ID NO.	
SAFETY-KLEEN SYSTEMS,							

PAYMENT RECEIVED SECTION	CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO
	CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
	INVOICE #	AMOUNT \$	INVOICE #
			AMOUNT \$
PREVIOUS CREDIT CARD NO	CREDIT CARD NO	AMEX VISA MC	EXP DATE
CUSTOMER REFERENCE			

IN THE EVENT OF AN EMERGENCY CALL  
1-800-468-1760 (24 hours)

CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT RECEIVED SECTION	TOTAL DUE	833.15
Customer certifies that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the U.S. Environmental Protection Agency and the U.S. Department of Transportation	DO NOT WRITE IN THE AREA BELOW	
ADDITIONAL TERMS AND CONDITIONS ON THE REVERSE SIDE OF THIS DOCUMENT ARE INCORPORATED HEREWITH MADE A PART HEREOF.	M002615102	
Print Name	431101	
GENERATOR/SHIPPER DESIGNATED REPRESENTATIVE SIGNATURE		
SEE REVERSE SIDE FOR IMPORTANT INFORMATION		



OIL RECOVERED/SALES ACKNOWLEDGMENT



7-088-06

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.	
3 Generator's Name and Mailing Address 8832 DICE ROAD SANTA FE SPRINGS CA 90670		CAL000021160	177258	A. State Manifest Document Number S 01119750		
4 Generator's Phone ( 562 ) 945-1383				B. State Generator's ID 140006		
5 Transporter 1 Company Name SAFETY-KLEEN SYSTEMS, INC		6. US EPA ID Number TXR000050930		C. State Facility ID 140006		
7 Transporter 2 Company Name TRIAD TRANSPORT		8. US EPA ID Number OKD981588791		D. State Facility ID 140006		
9 Designated Facility Name and Site Address SAFETY-KLEEN SYSTEMS, INC. 1722 COOPER CREEK ROAD DENTON, TX 76208		10 US EPA ID Number TXD077603371		E. State Facility ID 140006		
11A. 11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)		12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	
a. CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID) 8 UN3264 PG III (ERG#154)		002	DR	00840	P	0.15 191
b. Now - RCRA Hazardous Waste, Solid (leak)		001	DR	00150	P	0.15 191
c.						
d.						
J. Additional Descriptions for Materials Listed Above IA) NONE IB) NONE		K. Handling Codes for Wastes Listed Above A) H141 B) H141				
15. Special Handling Instructions and Additional Information MFST R/T#105766498 0002-2155-24 EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR. SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256 SKDOT# A: 180813 B: 49109 C: D:						
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed / Typed Name Rafael L. Motta		Signature Rafael L. Motta		Month Day Year 10/11/05		
17 Transporter 1 Acknowledgement of Receipt of Materials		Signature Jill Mann		Month Day Year 10/11/05		
18 Transporter 2 Acknowledgement of Receipt of Materials		Signature Ray Blackwood		Month Day Year 10/11/05		
19 Discrepancy Indication Space		DICE 01264				
20 Facility Owner or Operator. Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						
Printed / Typed Name WELLISON		Signature WELLISON		Month Day Year 10/11/05		



7-088-06

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB No 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address <b>AIR LIQUIDE OSC</b> <b>8832 DICE ROAD</b> <b>SANTA FE SPRINGS CA 90670</b>		4. Generator's Phone ( <b>562 945-1383</b> )	5. Transporter 1 Company Name <b>SAFETY-KLEEN SYSTEMS, INC</b>	6. US EPA ID Number <b>TXR000050930</b>	7. Transporter 2 Company Name
9. Designated Facility Name and Site Address <b>SAFETY-KLEEN SYSTEMS, INC.</b> <b>1722 COOPER CREEK ROAD</b> <b>DENTON, TX 76208</b>		10. US EPA ID Number <b>TXD077603371</b>	A. State Manifest Document Number <b>S01119750</b>		
			B. State Generator's ID <b>000006</b>		
			C. State Transporter's ID <b>000006</b>		
			D. Transporter's Phone <b>800 444-4444</b>		
			E. State Transporter's ID		
			F. Transporter's Phone		
			G. State Facility ID <b>05124</b>		
			H. Facility's Phone <b>840 483-5200</b>		
11A. HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, ID Number and Packing Group)	12. Containers No	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a	<b>CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, SULFURIC ACID)</b> <b>8 UN3264 PG III (ERG154)</b>	<b>002 DM</b>	<b>000000</b>	<b>P</b>	<b>1191</b>
b	<b>Non-HCL Hazardous Waste</b>	<b>001 RS</b>	<b>000000</b>	<b>P</b>	<b>015-191</b>
c					
d					
J. Additional Descriptions for Materials Listed Above <b>IA) NONE 1B) NONE</b>		K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information <b>MFST R/T#105766498 0002-2155-24</b> <b>EMERGENCY RESP 800-468-1760 (24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.</b> <b>SK CORP AUTH'D TO USE SUBSEQUENT CARRIERS: 40343, 41038, 81681, 82739, 86256</b> <b>SKDOT# A: 180813 B: 1179 C: D:</b>					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked, and labelled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed / Typed Name <b>James L. Hottel</b>		Signature <i>[Signature]</i>		Month Day Year <b>11 11 05</b>	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>[Signature]</i>		Date <b>11 11 05</b>	
18. Transporter 2 Acknowledgement or Receipt of Materials		Signature		Date	
Printed / Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space <b>DICE 01265</b>					
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed / Typed Name		Signature		Date Month Day Year	



5400 Legacy Drive, Cluster II, B3  
Plano, Texas 75024

800-669-5740  
www.safety-kleen.com



DUNS NO 05-397-6551

FED ID NO. 396090019

CUSTOMER

CUSTOMER NO.

FOR SERVICE CALL

BRANCH MANAGER

DOC EXP.

SCHEDULED SERVICE WEEK

SCHEDULED TERRITORY

REFERENCE NUMBER

626-575-4685 JOHNNY JIMENEZ

04

M002527495

CREDIT CODE

PREVIOUS BALANCE

BAL OVER 60 DAYS

BUSINESS TYPE

CHAIN

OUTER COUNTY

SVC P/C

PROD P/C

LOCATION

TAX EXEMPTION NO

708806

SERVICE DATE

SALES REP NO

CUSTOMER P O NUMBER

CUSTOMER PHONE #

TAX CODE

HANDLING CODE

ASSOC CODE

SERVICE TAX

C O M S TAX

PRODUCT TAX

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	WASTE MIN.	SOLVENT/DRUMS		CC	SERVICE TERM	CHANGE SERVICE TERM (WEEKS) INITIAL	CHANGE SCH DATE (YY MM)	INV CODE	PROMO NO	MSDS GIVEN
									CLEAN	SPENT							
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

TOTAL-SERVICE/PRODUCTS

CHECK APPROPRIATE BOXES

MACHINE CONDITION & CLEANLINESS

GOOD POOR

DECALS IN PLACE AND LEGIBLE

YES NO

MACHINE PROPERLY GROUNDED

YES NO

USEPA TRANSPORTER 1 ID NO: USEPA TRANSPORTER 2 ID NO: GENERATOR USEPA ID NO: GENERATOR STATE ID NO:

LAMP ASSEMBLY CONDITION

FUSIBLE LINK INSTALLED

YES NO

LOCAL PHONE NO STICKER AFFIXED TO MACHINE

YES NO

TXR000050930

11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID.)

12 CONTAINERS NO. TYPE

13 TOTAL QUANTITY

14 UNIT WT/VOL

SK DOT NUMBER

5163055

I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES

0 TO 220 LBS/MONTH

INITIALS

220 LBS TO 2,200 LBS/MONTH

INITIALS

GREATER THAN 2,200 LBS/MONTH

INITIALS

HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III

(DQ39)(ERG#171)AQUEOUS BRAKE SOLUTION (8.3#GAL)

USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR

USEPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)

USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR

USEPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)

DESIGNATED FACILITY NAME AND ADDRESS

SAFETY-KLEEN SYSTEMS, INC.

I CERTIFY THAT NO MATERIAL CHANGE HAS OCCURRED EITHER IN THE CHARACTERISTICS OF THE WASTE MATERIALS OR IN THE PROCESS GENERATING THE WASTE MATERIALS

USA EPA ID NO

STATE ID NO.

PAYMENT METHOD	CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO:	
	CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE	<input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS
PREVIOUS CREDIT CARD NO.	INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$
CREDIT CARD NO.		AMEX	EXP. DATE	
CUSTOMER SIGNATURE				

MANIFEST NO.	
50119750	
LDR MESSAGE	
MANIFEST CODE	SEQ #
	10 D
IN THE EVENT OF AN EMERGENCY CALL	
1-800-468-1750 (24 hours)	

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT/RECEIVED SECTION THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS

This is to certify that the above-named materials are properly classified, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

Print Customer Name: Alv Liguide

By: [Signature] Customer's Authorized Representative

DATE: 01/19/20

TOTAL CHARGE (FROM ABOVE)	
WASTE MIN (FROM ABOVE)	
TOTAL DUE	
DO NOT WRITE IN THE AREA BELOW	
M002527495	
017625	

SERVICE AND SALES ACKNOWLEDGMENT  
PART 1367 (Rev 05/04)



5400 Legacy Drive, Cluster II, B3 800-669-5740  
Plano, Texas 75024 www.safety-kleen.com

# PLACEMENT FORM

221 5524

626-575-4685 JOHNNY JIMENEZ

REFERENCE NUMBER  
P001238152

DUNS NO 05-397-8551 FED ID NO 396090019

BILL TO (IF DIFFERENT FROM LOCATION)

## GENERATOR LOCATION

NAME AIR LIQUIDE  
DELIVERY ADDRESS 8832 DIKE ROAD  
INFORMATION/ATTENTION LINE ILX  
CITY & STATE SANTA FE SPRINGS CA  
ZIP 75080 TAX CODE 90670-  
DATE PLACED 2-2-05

NAME  
DELIVERY ADDRESS  
INFORMATION/ATTENTION LINE ADD REP #  
CITY & STATE  
ZIP  
TAX CODE 0333

NAME TITLE SIGN  
1  
2

LOCATION 088 06 SIC CODE  
BUSINESS TYPE CHAIN ASSOCIATION SVC P/C PROD P/C  
SALES TAX EXEMPTION NUMBER

DATE PLACED 2-2-05 SALES REP NO 430494 CUSTOMER'S P O NUMBER 562 464-1205  
BLANKET TEMPORARY CUSTOMER PHONE NO HANDLING CODE CREDIT CODE SERVICE TAX 056 S TAX PRODUCT TAX

DEPT	SERVICE/PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	CLEAN	SOLVENT/DRUMS	CC	SERVICE TERM	SCHEDULE DATE (YY WW)	PROMO NO	RELEASE NO	MSGS GIVEN
1	82167	4008546	ANALYTICAL Profile	2	370.00										
2	850315	4008546	CORROSIVE LIQUID DISP	2	701.50										
3	890050	4008577	CONTAMINATED SUE	1	319.25										
4	88888														
5	88888														
6	10001		Fuel Ser Charge	1	8.15										
7															

TOTAL-SERVICE/PRODUCTS 1418.90 REFUSED SERVICE EXPLAIN

USEPA TRANSPORTER 1 ID NO USEPA TRANSPORTER 2 ID NO GENERATOR USEPA ID NO GENERATOR STATE ID NO

11 US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID)

HAZARDOUS WASTE, LIQUID, N.O.S. 9 NA3082 PG III  
D039 (ERG#171) AQUEOUS BRAKE SOLUTION (8.3#GAL)  
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR  
EPA REGULATED) AQUEOUS PARTS WASHER SOLUTION (8.3#GAL)  
USED CLEANING COMPOUNDS, N.O.I.B.N. LIQUID (NOT USDOT OR  
EPA REGULATED) AQUEOUS IMMERSION CLEANER (8.4#GAL)

12 CONTAINERS NO	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER
			839
			941
			3311

1 CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES  
0 TO 220 LBS /MONTH  
220 LBS TO 2,200 LBS /MONTH  
GREATER THAN 2,200 LBS /MONTH

DESIGNATED FACILITY NAME AND ADDRESS SAFETY-KLEEN SYSTEMS, INC.

PAYMENT INFORMATION  
CASH CHECK NUMBER INVOICE # AMOUNT \$ INVOICE # AMOUNT \$  
PREVIOUS CREDIT CARD NO  
CREDIT CARD NO AMEX VISA MC EXP DATE  
CUSTOMER REFERENCE

MANIFEST NO LDR MESSAGE  
MANIFEST CODE SEQ #  
IN THE EVENT OF AN EMERGENCY CALL

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT  
Print Customer Name Air Liquide  
By Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)  
TOTAL DUE 1418.90  
DO NOT WRITE IN AREA BELOW  
P001238152  
430494



## PLACEMENT FORM

FOR SERVICE CALL	BRANCH MANAGER	REFERENCE NUMBER
		P00123 8151

DUNS NO 05-397-6551

FED ID NO 396090019

### GENERATOR LOCATION

## BILL TO (IF DIFFERENT FROM LOCATION)

NAME												
AIR LIQUIDE												
DELIVERY ADDRESS												
88X32 DICE ROAD												
INFORMATION/ATTENTION LINE												
ELVA												
CITY & STATE												
SANTA FE SPRINGS CA												
ZIP												
70670-												
TAX CODE												

NAME														
DELIVERY ADDRESS														
INFORMATION ATTENTION LINE														
CITY & STATE														
ZIP										TAX CODE				

	NAME	TITLE	SIGNATURE
1			
2			

LOCATION		SIC CODE		
BUSINESS TYPE	CHAIN	ASSOCIATION	SVC P/C	PROD P
SALES TAX EXEMPTION NUMBER				

DATE PLACED	SALES REP NO	<input type="checkbox"/> BLANKET	<input type="checkbox"/> TEMPORARY	CUSTOMER PHONE NO	HANDLING CODE	CREDIT CODE	SERVICE TAX	C.O M S TAX	PRODUCT TAX
2-7-85	4321194			5822464-1231					

DEPT	SERVICE/ PRODUCT	SERIAL NUMBER	REMARKS/UNIT PRICE	QUAN	CHARGE	SALES TAX	TOTAL CHARGE	SOLVENT/DRUMS				CC	SERVICE TERM	SCHEDULE DATE (YY WW)	BOM CODE (SEE BELOW)	FREE TRIAL	INV CODE	PROMO NO	RELEASE NO	MSDS GIVEN	
								CLEAN	SPENT	55%	SK DOT										
1	10214		LABOR		1240 <sup>00</sup>		P.O. 750086453														<input type="checkbox"/>
2			MATERIALS		850 <sup>00</sup>																<input type="checkbox"/>
3							PROJECT R6020105 (SERV & BOM CHARGEOUT)														<input type="checkbox"/>
4																					<input type="checkbox"/>
5																					<input type="checkbox"/>
6																					<input type="checkbox"/>
7																					<input type="checkbox"/>

TOTAL-SERVICE/PRODUCTS				REFUSED SERVICE EXPLAIN		(1) NEW APPLICATION (2) REPLACE DEFECTIVE MACHINE (3) REPLACE COMPETITIVE MACHINE (4) REPLACE HOME MADE VAT (5) ADDITIONAL MACHINE
USEPA TRANSPORTER 1 ID NO.				USEPA TRANSPORTER 2 ID NO.		
GENERATOR USEPA ID NO.		GENERATOR STATE ID NO.				

11	US DOT DESCRIPTION (INCLUDING PROPER SHIPPING NAME, HAZARD CLASS, AND ID )

12 CONTAINERS NO	TYPE	13 TOTAL QUANTITY	14 UNIT WT/VOL	SK DOT NUMBER				I CERTIFY THAT MY TOTAL WASTE STREAMS ARE WITHIN ONE OF THE FOLLOWING CATEGORIES
								0 TO 220 LBS /MONTH  _____ INITIALS
								220 LBS TO 2 200 LBS /MONTH  _____ INITIALS
								GREATER THAN 2,200 LBS./MONTH  _____ INITIALS

DESIGNATED FACILITY NAME AND ADDRESS	USA EPA ID NO
	STATE ID NO.

<b>PAYMENT RECEIVED SECTION</b>	CASH <input type="checkbox"/>	TOTAL RECEIVED	APPLY PAYMENT TO								
	CHECK NUMBER		<input type="checkbox"/> TODAY'S SERVICE/SALE <input type="checkbox"/> PREVIOUS BALANCE AS FOLLOWS								
	INVOICE #	AMOUNT \$	INVOICE #	AMOUNT \$							
	PREVIOUS CREDIT CARD NO.										
	CREDIT CARD NO.									AMEX VISA MC	EXP DATE
CUSTOMER REFERENCE											

MANIFEST NO.	
LDR MESSAGE.	
MANIFEST CODE	SEQ #

I AGREE TO PAY THE ABOVE CHARGES AND TO BE BOUND BY THE TERMS AND CONDITIONS SET FORTH ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT. PLEASE CHARGE MY ACCOUNT FOR THIS TRANSACTION UNLESS OTHERWISE INDICATED IN THE PAYMENT/RECEIVED SECTION. THE INDIVIDUAL SIGNING THIS DOCUMENT IS DULY AUTHORIZED TO SIGN AND BIND CUSTOMER TO ITS TERMS.

\*This is to certify that the above-named materials are properly packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Arr L: Borde

Print Customer Name

By Robert M. Mella

Customer's Authorized Representative

TOTAL CHARGE (FROM ABOVE)	
TOTAL DUE	\$ 2090 <sup>00</sup>
DO NOT WRITE IN AREA BELOW	

**IN THE EVENT OF AN  
EMERGENCY CALL**  
1-800-468-1760 (24 hours)

CUSTOMER

PART NO 1360 (Rev 05/04)



## BILL OF LADING/MANIFEST

1 Shipper's US EPA ID No. (If Applicable)

CAL000021160

Document No.

78169

2 Page 1

of 1

3 Shipper's Name and Mailing Address

AIR LIQUIDE OSC  
8832 DICE ROAD

SANTA FE SPRINGS

CA 90670

4 Shipper's Phone

562 945-1383

5 Transporter 1 Company Name

SAFETY-KLEEN SYS, INC.

6

US EPA ID Number

TXR000050930

A Transporter's Phone

800 669-5740

7 Transporter 2 Company Name

8

US EPA ID Number

B Transporter's Phone

9 Designated Facility Name and Site Address

000798

SAFETY-KLEEN SYSTEMS, INC.  
10625 HICKSON ST UNIT A  
EL MONTE CA 91731

10

US EPA ID Number

CAT000613893

C Facility's Phone

626 401-2616

11 Shipping Name and Description

12 Containers

No

Type

13  
Total  
Quantity14  
Unit  
Wt/Vol

HM

USED CLEANING COMPOUNDS, LIQUID, NOS (NOT  
USDOT/USEPA REGULATED)(NON HAZARDOUS  
AQUEOUS PARTS WASHER SOLUTION)(8.3#/GAL)

DM

G

15. Special Handling Instruction and Additional Information

MFST R/T#106810635 0002-2155-24  
EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.

SKDOT# A: 492 B: C: D:

## 16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

\*This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

Printed/Typed Name

Signature required  
here if  
US DOT regulated

Month Day Year

## 16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal

Printed/Typed Name

Sign here if  
material is not  
DOT regulated

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19 Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of materials covered by this form except as noted in Item 19

DICE 01269

Printed/Typed Name

Signature

Month Day Year

IN EVENT OF EMERGENCY CALL  
1-800-468-1760 (24 hours)

ORIGINAL-RETURN TO GENERATOR

FORM NO 90291 (11/96)

## BILL OF LADING/MANIFEST

1 Shipper's US EPA ID No (If Applicable)

CAL000021160

Document No.

2 Page 1  
of 1

3 Shipper's Name and Mailing Address

AIR LIQUIDE OSC  
8832 DICE ROAD

SANTA FE SPRINGS

CA 90670

4 Shipper's Phone (

562 945-1383

5 Transporter 1 Company Name

SAFETY-KLEEN SYS, INC.

6

US EPA ID Number

TXR000050930

A Transporter's Phone

800 669-5740

7 Transporter 2 Company Name

8

US EPA ID Number

B Transporter's Phone

9 Designated Facility Name and Site Address

000798  
SAFETY-KLEEN SYSTEMS, INC.  
10625 HICKSON ST UNIT A  
EL MONTE CA 91731

10

US EPA ID Number

CAT000613893

C Facility's Phone

626 401-2616

11. Shipping Name and Description

12 Containers

No

Type

13  
Total  
Quantity14  
Unit  
Wt/Vol

a.

HM  
USED CLEANING COMPOUNDS, LIQUID, NOS (NOT  
USDOT/USEPA REGULATED)(NON HAZARDOUS  
AQUEOUS PARTS WASHER SOLUTION)(8.3#/GAL)

DM

G

b.

c.

d.

15. Special Handling Instruction and Additional Information

MFST R/T#106810635 0002-2155-24  
EMERGENCY RESP 800-468-1760(24 HR). IF UNDELIVERABLE RETURN TO GENERATOR.  
SK CORP AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY.

SKDOT# A:

492 B:

C:

D:

16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION:

\*This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

Printed/Typed Name

Signature required  
here if  
US DOT regulated

Month Day Year

16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal

Printed/Typed Name

Sign here if  
material is not  
DOT regulated

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19.

DICE 01270

Printed/Typed Name

Signature

Month Day Year

IN EVENT OF EMERGENCY CALL  
1-800-468-1760 (24 hours)

GENERATOR'S COPY

FORM NO 90291 (11/96)

## MATERIAL SAFETY DATA SHEET

Date Printed: 09/13/2007  
Date Updated: 01/26/2006  
Version 1.2

## Section 1 - Product and Company Information

Product Name POTASSIUM HYDROXIDE SOLUTION 45%,  
4X25 ML  
Product Number 38161  
Brand FLUKA  
Company Sigma-Aldrich  
Address 3050 Spruce Street  
SAINT LOUIS MO 63103 US  
Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
POTASSIUM HYDROXIDE SOLUTION, 25%=<C	None	No

Ingredient Name	CAS #	Percent	SARA 313
WATER	7732-18-5	<= 75	No
POTASSIUM HYDROXIDE	1310-58-3	>= 25	No

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Corrosive.  
Harmful if swallowed. Causes severe burns.

## HMIS RATING

HEALTH: 3  
FLAMMABILITY: 0  
REACTIVITY: 0

## NFPA RATING

HEALTH: 3  
FLAMMABILITY: 0  
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

## INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

## DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

---

### Section 5 - Fire Fighting Measures

---

#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

---

### Section 6 - Accidental Release Measures

---

#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

---

### Section 7 - Handling and Storage

---

#### HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.

---

### Section 8 - Exposure Controls / PPE

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DICE 01272

#### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose

combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.  
Hand: Compatible chemical-resistant gloves.  
Eye: Chemical safety goggles.  
Other: Faceshield (8-inch minimum).

#### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

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#### Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
Molecular Weight	N/A	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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#### Section 10 - Stability and Reactivity

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##### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

##### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

##### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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#### Section 11 - Toxicological Information

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DICE 01273

#### ROUTE OF EXPOSURE

Skin Contact: Causes severe burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Harmful if swallowed.

#### SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

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#### Section 12 - Ecological Information

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No data available.

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#### Section 13 - Disposal Considerations

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#### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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#### Section 14 - Transport Information

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##### DOT

Proper Shipping Name: Potassium hydroxide, solution

UN#: 1814

Class: 8

Packing Group: Packing Group II

Hazard Label: Corrosive

PIH: Not PIH

##### IATA

Proper Shipping Name: POTASSIUM HYDROXIDE SOLUTION

IATA UN Number: 1814

Hazard Class: 8

Packing Group: II

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#### Section 15 - Regulatory Information

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#### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: C

Indication of Danger: Corrosive.

R: 22-35

Risk Statements: Harmful if swallowed. Causes severe burns.

S: 26-36/37/39-45

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### US CLASSIFICATION AND LABEL TEXT

**DICE 01274**

Indication of Danger: Corrosive.  
Risk Statements: Harmful if swallowed. Causes severe burns.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

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Section 16 - Other Information

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DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

DICE 01275



# MATERIAL SAFETY DATA SHEET

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## 1. PRODUCT AND COMPANY INFORMATION

**CHEMICAL NAME; CLASS:** **ETHYLENE OXIDE**

**SYNONYMS:** Amprolene; Anprolene; Anproline; Dihydrooxirene; Dimethylene Oxide;  
ENT 26,263; E.O.; 1,2-Epoxyethane; Ethene Oxide; ETO; Mergol; Oxyane;  
Oxacyclopropane; Oxidoethane;  $\alpha,\beta$ -Oxidoethane; Oxirane; Oxyfume; T-Gas

**CHEMICAL FAMILY NAME:** Hydride

**FORMULA:**  $C_2H_4O$

**PRODUCT USE:**

Document Number: 20068

Chemical intermediate for manufacture of ethylene glycol and higher glycols; sterilant for surgical instruments; and fumigant for foodstuffs and textiles; component of fungicide in agricultural applications; starting material for acrylonitrile and non-ionic surfactants.



**MANUFACTURED/SUPPLIED FOR:**

**ADDRESS:**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896  
Fax on Demand: 1-800/231-1366

DICE 01276



## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Ethylene Oxide is a colorless, highly reactive, toxic, flammable gas at normal temperature pressure, and a colorless liquid below 10.4°C (50.7°F). Both the liquid and the gas have an ether-like odor. Exposure to even very small quantities can result in severe health effects; inhalation of higher concentrations may be fatal. Ethylene Oxide is a suspected human carcinogen and a reproductive toxin. Ethylene Oxide can form flammable mixtures in air and presents an extreme fire hazard when accidentally released. Ethylene Oxide is slightly heavier than air and may travel a considerable distance to a source of ignition and flash-back to a leak. Ethylene oxide is highly reactive and can undergo hazardous polymerization if contaminated. Emergency responders must wear adequate personal protective equipment and provide suitable fire protection during response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant routes of over-exposure for Ethylene Oxide are by inhalation, ingestion and skin and eye contact.

**INHALATION:** Ethylene Oxide is considered moderately toxic by inhalation. Exposure to low concentrations of vapors of Ethylene Oxide can result in nausea, vomiting, and other effects on the central nervous system. These symptoms can be delayed for five or more hours after exposure. Inhalation of low to moderate concentrations of Ethylene Oxide will cause irritation of the nose, throat, mucous membranes and upper respiratory tract. Inhalation of high concentrations of Ethylene Oxide (as may occur if Ethylene Oxide is used or released in a poorly-ventilated area or confined space, or during a release of large volumes of this product), can cause potentially fatal pulmonary edema. Odor is not a reliable warning property for Ethylene Oxide; inhalation of low concentrations of this gas can cause olfactory fatigue rather rapidly.

**CONTACT WITH SKIN or EYES:** Contact of vapors or liquid with the skin can cause blistering to severe, delayed chemical burns. Skin ulcers may be delayed, often appearing one to five hours after contact. Allergic dermatitis may occur after prolonged or repeated skin exposures. Contact of vapors with the eyes can cause moderate to severe irritation, resulting in tearing, redness and burns. Direct contact of Liquid Ethylene Oxide with the eyes, will cause severe irritation and corneal injury, possibly leading to blindness. Repeated eye over-exposure may lead to cataracts.

**SKIN ABSORPTION:** Ethylene Oxide may be absorbed through intact skin, causing systemic poisoning as described under "Other Potential Health Effects".

**INGESTION:** Ingestion is not anticipated to be a significant route of industrial over-exposure for Ethylene Oxide. If ingested, Ethylene Oxide is toxic by ingestion, causing symptoms of systemic poisoning as described under "Other Potential Health Effects".

**OTHER POTENTIAL HEALTH EFFECTS:** Ethylene Oxide is a poison by ingestion, intraperitoneal, subcutaneous and intravenous routes. Human system effects by these routes and by inhalation can lead to convulsions, nausea, vomiting, olfactory and pulmonary changes, drowsiness, weakness and incoordination, EKG abnormalities, and cyanosis. Ethylene Oxide is a suspected human carcinogen (potentially causing leukemia, as well as stomach and pancreatic cancers) with experimental carcinogenic, tumorigenic, neoplastigenic and teratogenic data. Over-exposure to Ethylene Oxide may also cause liver, kidney, and central nervous system damage. For further information, see Section 11, Toxicological Information.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Over-exposure to Ethylene Oxide may cause the following health effects:

**ACUTE:** Ethylene Oxide is a severe irritant via inhalation, skin and eye contact and may cause delayed injury. Exposure to low concentrations by inhalation can cause nausea and vomiting, which can also be delayed after exposure. Acute over-exposure to high concentrations via inhalation can lead to potentially fatal pulmonary edema. Contact of the liquid with the eyes can cause corneal burns and possibly blindness. Acute exposure via all routes can lead to systemic poisoning, leading to symptoms of convulsions, nausea, vomiting, cyanosis and changes in olfactory senses, pulmonary system and to EKG abnormalities.

DICE 01277

## 2. HAZARD IDENTIFICATION (Continued)

**CHRONIC:** Ethylene Oxide is a suspected human carcinogen. Experimental data are available as to the tumorigenic, carcinogenic, neoplastigenic and teratogenic properties of Ethylene Oxide. Refer to Section 11 (Toxicology Information) for additional data. Repeated exposure to low levels of the gas or liquid may lead to dermatitis, with symptoms of redness, dried and cracked skin

**TARGET ORGANS:** Respiratory system, skin, eyes, reproductive system, kidney, liver.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Ethylene Oxide	75-21-8	> 99.0%	1, A2, Suspected Human Carcinogen	NE	1	5 (15 minute excursion)	800	NIOSH REL: < 0.1 TWA, 5 C (10 minutes/day), Carcinogen OSHA Action Level: 0.5 ppm IARC-2A, MAK-A2, NTP-2A, OSHA-X
Maximum Impurities		<1 0%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910 1200) and State equivalents standards					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-2004 format.

## 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO ETHYLENE OXIDE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Chemically-Resistant and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.**

Remove victim(s) to fresh air, as quickly as possible. Treatment for Ethylene Oxide poisoning must be prompt. All over-exposed individuals must receive medical evaluation, because the development of symptoms to potentially life-threatening conditions may be delayed. Keep victims warm and comfortable.

**INHALATION:** If vapors, mists, or sprays of any of Ethylene Oxide are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Remove or cover gross contamination to avoid exposure to rescuers.

**SKIN EXPOSURE:** If Ethylene Oxide contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s). Specific notes to physicians are located in Section 11, Toxicological Information.

DICE 01278

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** -20°C (-4°F)

**AUTOIGNITION TEMPERATURE:** 429°C (804°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 3.0%

Upper (UEL): 100%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Ethylene Oxide fires by shutting-off the source of the gas. Use a fine water spray or fog to reduce combustion products formed in air. Cool fire-exposed cylinders with water spray, from the maximum distance possible. Alcohol foam, carbon dioxide or dry chemical forms of fire extinguishing agents can be used against Ethylene Oxide fires.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Ethylene oxide presents a serious health hazard to firefighters; short-term over-exposures to this substance can cause serious injury or death. Ethylene Oxide is a Class IA flammable liquid. Ethylene Oxide will readily ignite at room temperature. Ethylene Oxide is slightly heavier than air and can travel considerable distances to a source of ignition and flash-back to the leak. Ethylene Oxide can react violently with water, and can undergo hazardous polymerization.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Direct flame exposure on the cylinder wall can cause an explosion either by BLEVE (Boiling Liquid Expanding Vapor Explosion), or by exothermic decomposition. This is a catastrophic failure of the cylinder releasing the contents into a massive fireball and explosion. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Sensitive. Static charge can build-up and may cause this product to ignite explosively if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** In the event of fire, cool containers of this product with water to prevent failure. Use a water spray or fog to reduce or direct vapors. Water is not effective in actually extinguishing a fire involving Ethylene Oxide, due to its low flash point and the potential for an explosive chemical reaction. Stop the leak or discharge, if possible. For small releases, if it is not possible to stop the leak, and it does not endanger personnel, let the fire burn itself out. Incipient fire responders should wear eye protection. Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Appropriate chemically-protective clothing may be necessary. Keep away from low-lying areas. Stay upwind. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of vessel exposures, evacuate the area. Follow the guidelines of the North American Emergency Response Guidebook (Guide #119).

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** If a leak occurs of a sufficient quantity to cause a dangerous level of Ethylene Oxide, evacuate the immediate area of all personnel. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment must be used. In case of a release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level A: fully encapsulating suit, triple-layer of gloves (neoprene over nitrile and N-Dex or latex), chemically-resistant boots, hard-hat, and Self-Contained Breathing Apparatus.** Level A protection must be worn during emergency response situations in all areas in which the level of exposure to Ethylene Oxide is above 50% of the TLV (1 ppm). Fire retardant gear must be worn under Level A protection when Ethylene Oxide levels exceed 10% of the LEL (3.0%).

Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate, if it can be done to an area in which there are no personnel. Combustible gas concentration must be below 10% of the LEL (3.0%) prior to entry. Monitor the surrounding area for toxic Ethylene Oxide levels as well as combustible gas levels and oxygen level. The atmosphere must be below 50% of the TLV (1 ppm) of Ethylene Oxide and must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area.

DICE 01279

## 7. HANDLING AND STORAGE

If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

NOTE: A colorimetric tubes and direct reading instruments are available for Ethylene Oxide.

**THIS IS AN EXTREMELY TOXIC, REACTIVE, FLAMMABLE GAS.** Protection of all personnel and the area must be maintained. **WORK PRACTICES AND HYGIENE PRACTICES:** All areas where Ethylene Oxide is used should be monitored with very sensitive gas detection instruments. Detection of concentrations below 50% of the TLV level of 1 ppm should trigger immediate response and corrective action. Detection of higher levels should initiate an alarm calling for evacuation of all personnel with the potential to be exposed. Due to the toxicity of Ethylene Oxide, all contaminated clothing should be removed and placed in a sealed container for proper disposal.

**NOTE:** Refer to the OSHA Ethylene Oxide Standard (29 CFR 1910.1047) for specific requirements associated with the use of this gas. The Action Level for Ethylene Oxide is 0.5 ppm. In workplaces where employees are exposed above the Action Level, the OSHA requirements for monitoring, establishment of regulated areas, methods of compliance, respiratory protection, emergency response protocol, medical surveillance, training, and record-keeping must be followed.

**STORAGE AND HANDLING PRACTICES:** Entrances to regulated areas (as defined by the OSHA Ethylene Oxide Standard) must be posted with legible signs which reads as follows:

**DANGER  
ETHYLENE OXIDE  
CANCER HAZARD AND REPRODUCTIVE HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED TO  
BE WORN IN THIS AREA**

Additionally, refer to Appendix A of the Ethylene Oxide Standard (29 CFR 1910.1047) to determine specific workplace practices (e.g., changing supply line filters, work in restricted access areas, door opening procedures, sterilizers without purge cycles, chamber unloading procedures, maintenance).

Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity). Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers). Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

DICE 01280

## 7. HANDLING AND STORAGE (Continued)

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable, reactive, and toxic gas storage. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty.

THREADED: CGA 510

PIN-INDEXED YOKE: Not applicable.

ULTRA HIGH INTEGRITY: Not applicable.  
**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Install automatic monitoring equipment to detect the level of Ethylene Oxide. Provide explosion-proof ventilation adequate to ensure Ethylene Oxide does not reach its lower flammability limit of 3.0%. Process enclosure and local exhaust ventilation is recommended for operations involving Ethylene Oxide. Refer to Appendix A of the OSHA Ethylene Oxide Standard (29 CFR 1910.1047) for specific information on workplace design and engineering controls (e.g. gas line hand valves, "capture boxes", and ventilation systems for aeration units, sterilizer relief valves, and in areas in which cylinder are changed).

**RESPIRATORY PROTECTION:** Maintain Ethylene Oxide levels below 50% of the TLV (1 ppm) and oxygen levels above 19.5% in the workplace. The use of supplied air respiratory protection is recommended when changing Ethylene Oxide cylinders or working on Ethylene Oxide systems. Use supplied air respiratory protection when Ethylene Oxide levels exceed 50% of the TLV (1 ppm), oxygen levels are below 19.5%, or during emergency response to a release of this product. During an emergency situation, before entering the area, check the concentration of Ethylene Oxide and oxygen. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards. The following NIOSH guidelines for respirator selection are provided for additional information:

### CONCENTRATION

Up to 5 ppm

### RESPIRATORY EQUIPMENT

Gas mask with canister, full-facepiece SCBA or full-facepiece Supplied Air Respirator (SAR)

Emergency or Planned Entry into Unknown Concentration or IDLH Conditions: Positive-pressure, full facepiece SCBA or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister to protect against Ethylene Oxide or escape-type SCBA should be used.

The IDLH concentration for Ethylene Oxide is 800 ppm; however, the carcinogenic properties of Ethylene Oxide were not taken into consideration in determining the IDLH.

**NOTE:** Follow the specific respiratory selection guidelines of the OSHA Ethylene Oxide Standard in regulated areas (as defined by 29 CFR 1910.1047).

**EYE PROTECTION:** Safety glasses or goggles, with faceshield.

**HAND PROTECTION:** Wear leather gloves for handling of cylinders of this product; however, if contaminated, should be discarded as Ethylene Oxide will be retained in the leather and can cause burns or allergic skin rashes. Wear chemically impervious gloves appropriate for Ethylene Oxide for industrial use. Gloves should have a resistance to breakthrough greater than 8 hours, such as polyvinyl alcohol, Barricade™, Chemrel™, or Responder™. Natural rubber, neoprene, nitrile rubber, or polyethylene, polyvinyl chloride, Viton™, Saranexl™ are not recommended. Use triple gloves for spill response (see Section 6, Accidental Release Measures).

DICE 01281

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. For emergency response operations, clothing resistant to the toxic effects of Ethylene Oxide is required (i.e., Level A Protection).

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 20°C (68°F) and 21.1 psia (146.0 kPa abs):** 0.1751 lb/ft<sup>3</sup> (2.804 kg/m<sup>3</sup>)

**LIQUID DENSITY @ 20°C (68°F) and 21.1 psia (146.0 kPa abs):** 54.30 lb/ft<sup>3</sup> (869.8 kg/m<sup>3</sup>)

**BOILING POINT @ 14.7 psia (101.3 kPa abs):** 10.4°C (50.7°F)

**FREEZING/MELTING POINT @ 14.7 psia (101.3 kPa abs):** -112.6°C (-170.7°F)

**SPECIFIC GRAVITY (air = 1):** 1.52

**pH:** Not applicable.

**SOLUBILITY IN WATER:** Miscible.

**MOLECULAR WEIGHT:** 44.05

**EVAPORATION RATE (nBuAc = 1):** Not available.

**EXPANSION RATIO:** Not applicable.

**VAPOR PRESSURE @ 20°C (68°F):** 21.1 psia (146.0 kPa)

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 5.0

**ODOR THRESHOLD:** 420 ppm (detection); 490 ppm (recognition)

**COEFFICIENT WATER/OIL DISTRIBUTION:** Log P (oct) = -0.30.

**APPEARANCE AND COLOR:** Colorless gas with an ether-like odor at normal pressure and temperature; colorless liquid, with an ether-like odor below 10.4°C (50.7°F)

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The odor of Ethylene Oxide is not a good warning property as it will rapidly cause olfactory fatigue. Monitoring systems must be used for detection of this gas.

## 10. STABILITY and REACTIVITY

**STABILITY:** Ethylene Oxide is highly reactive. Ethylene Oxide may undergo a runaway reaction with water.

**DECOMPOSITION PRODUCTS:** When involved in a fire, this material may decompose and produce toxic gases (i.e., carbon monoxide, carbon dioxide), irritating fumes and acrid smoke.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Ethylene Oxide can polymerize violently when in contact with highly catalytic surfaces such as anhydrous iron, tin, aluminum chloride, and ammonia, pure iron, aluminum oxides, and alkali metal hydroxides. Ethylene Oxide is incompatible with bases, alcohols, air, m-nitroaniline, trimethyl amine, copper, iron chlorides, iron oxides, magnesium perchlorate, mercaptans, potassium, alkane thiols and bromomethane. Ethylene Oxide reacts explosively with glycerol above 200°F (93.3°C). Rapid compression of the vapor of Ethylene Oxide with air can cause an explosion.

**HAZARDOUS POLYMERIZATION:** Hazardous polymerization may occur if contaminated or in contact with incompatible materials, as listed above.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to moisture and to heat, sparks and other sources of ignition.

DICE 01282

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following data are available for Ethylene Oxide:

Unscheduled DNA Synthesis-Human. leukocyte 4 mmol/L	Subcutaneous-Mouse TD. 908 mg/kg/95 weeks - Intermittent. Carcinogenic effects
Sister Chromatid Exchange-Human lymphocyte 4 pph	Subcutaneous-Mouse TD. 2576 mg/kg/95 weeks - intermittent Carcinogenic effects
Teratogenesis, Carcinogenesis, and Mutagenesis	Oral-Rat TD: 5112 mg/kg/2 years - intermittent. Carcinogenic effects
Skin-Human 1%/7 seconds	Inhalation-Rat TC: 50 ppm/7 hours/2 years - intermittent. Carcinogenic effects
Eye effects-Rabbit, adult 18 mg/6 hours Moderate irritation effects	Inhalation-Rat TC 33 ppm/6 hours/2 years - intermittent. Equivocal tumorigenic agent
Mutation in Microorganisms-other microorganisms 540 mg/L	Inhalation-Rat TC 33 ppm/6 hours/2 years - intermittent. Carcinogenic effects
Sister Chromatid Exchange-Human lymphocyte 10 mg/L	Inhalation-Human TCLo: 12,500 ppm/10 seconds nose
DNA Damage-Mouse-Intraperitoneal 100 mg/kg	Inhalation-Woman TCLo 500 ppm/2 minutes Central nervous Gastrointestinal tract, Pulmonary system effects
Dominant Lethal Test-Mouse-Inhalation 500 ppm/6 hours/4 days-continuous	Oral-Rat LD <sub>50</sub> . 72 mg/kg
Intraperitoneal-Mouse TDLo 750 mg/kg (male 25D pre):Reproductive effects	Inhalation-Rat LC <sub>50</sub> 800 ppm/4 hours
Inhalation-Mouse TCLo 1200 ppm/90 minutes (female 1 day post):Teratogenic effects	Subcutaneous-Rat LD <sub>50</sub> 187 mg/kg
Oral-Rat TDLo 1186 mg/kg/2 years- intermittent Carcinogenic effects	Inhalation-Mouse LC <sub>50</sub> 836 ppm/4 hours
Inhalation-Rat TCLo 33 ppm/6 hours/2 years- intermittent Carcinogenic effects	Intraperitoneal-Mouse LD <sub>50</sub> 175 mg/kg
Inhalation-Mouse TDLo 50 ppm/6 hours/2 years Carcinogenic effects, tumors	Intravenous-Mouse LD <sub>50</sub> 290 mg/kg
Subcutaneous-Mouse TDLo. 292 mg/kg/95 weeks- intermittent Carcinogenic effects	Inhalation-Dog, adult LC <sub>50</sub> 960 ppm/4 hours
Subcutaneous-Mouse TD 1090 mg/kg/91 weeks - intermittent Neoplastic effects	Subcutaneous-Cat, adult LDLo 100 mg/kg
	Intravenous-Rabbit, adult LDLo 175 mg/kg
	Inhalation-Guinea Pig, adult LC <sub>50</sub> 1500 mg/m <sup>3</sup> /4 hours

**SUSPECTED CANCER AGENT:** Ethylene Oxide is listed as follows: IARC-2A (Probably Carcinogenic to Humans; Limited Human Evidence/Sufficient Evidence in Experimental Animals), MAK-A2 (Unmistakable Carcinogenic in Animal Experimentation Only), NTP-2A (Reasonably Anticipated to be a Carcinogen; Limited Evidence of Carcinogenicity from Studies with Humans); OSHA-X (Carcinogen); NIOSH-X (Carcinogen); ACGIH-A2 (Suspected Human Carcinogen)

**IRRITANCY OF PRODUCT:** Ethylene Oxide is moderately to severely irritating to contaminated skin and severely irritating to the eyes.

**SENSITIZATION TO THE PRODUCT:** Ethylene Oxide is a sensitizer after prolonged or repeated over-exposures.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of this product on the human reproductive system.

**Mutagenicity:** Studies indicate that Ethylene Oxide workers are more likely to have chromosomal damage that similar workers not exposed to this substance. Human mutation data are also available for Ethylene Oxide; these data were obtained during clinical studies on specific human tissues exposed to this substance.

**Embryotoxicity:** Ethylene Oxide may cause embryotoxic effects. There is an increased incidence of spontaneous abortions among workers in Ethylene Oxide production.

**Teratogenicity:** Ethylene Oxide may be teratogenic and damage the developing fetus. Animal teratogenicity data are available from clinical studies.

**Reproductive Toxicity.** There is an increased incidence of gynecological disorders among workers in ethylene oxide production. One study indicated a reduced sperm count in exposed workers. Data on adverse reproductive effects are also available from animal studies.

*A **mutagen** is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An **embryotoxin** is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A **teratogen** is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A **reproductive toxin** is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to this product. Additionally, blood, kidney, liver and cardiovascular conditions may also be aggravated (depending on the severity and duration of the over-exposure).

**RECOMMENDATIONS TO PHYSICIANS:** If victim experiences nausea and vomiting, sufficient quantities of warm water should be administered in order to wash out stomach. Unpublished reports indicate that, for persistent nausea and vomiting caused by inhalation of Ethylene Oxide vapors, an intramuscular injection of sodium phenobarbital (of 2 grains), is very helpful in controlling such symptoms.

DICE 01283

## 11. TOXICOLOGICAL INFORMATION (Continued)

In event of severe exposure and if victim is still breathing, victim should be administered 100% oxygen under positive exhalation pressure for one-half hour periods every hour for at least three hours. If no sign of lung congestion appears after this period and if breathing is easy and skin and mucous membranes show good color, oxygen therapy can be discontinued. If breathing has stopped, artificial respiration should be started preferably while administering oxygen, preferably.

For skin burns resulting in blister formation, evacuate blisters and apply solid petroleum dressings. Skin burns from exposure to aqueous solutions of Ethylene Oxide should receive copious irrigation of normal saline followed by application of a topical antimicrobial agent, such as silver sulfadiazine cream and a dressing. Signs of burns may not appear after exposure for up to 5 hours.

Refer to the OSHA Ethylene Oxide Standard (29 CFR 1910.1047, paragraph I) for specific information on Medical Surveillance requirements (i.e. for the general physical exam, medical history, specific tests, and re-examination protocol). Physical examinations must be given with emphasis on the skin and eyes, as well as the pulmonary, hematologic, neurologic, and reproductive systems.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Ethylene Oxide.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas. Based on limited data, Ethylene Oxide is expected to biodegrade at a reasonable rate after acclimation.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Ethylene Oxide is an extremely toxic gas which can be harmful or fatal to over-exposed plant or animal life. Refer to Section 11 (Toxicology Information) for data on Ethylene Oxide's effects on test animals during clinical studies. No specific studies on the bio-concentration of Ethylene Oxide have been completed; however, due to the low octanol/water partition coefficient of  $K_{ow} = -0.3$ , Ethylene Oxide is not expected to bio-concentrate significantly.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** Ethylene Oxide is an extremely toxic gas which is soluble in water; therefore, this gas can be harmful or fatal to aquatic life in contaminated bodies of water. The following aquatic toxicity data are available for Ethylene Oxide:

LC<sub>50</sub> Goldfish 90 mg/L/24 hours, modified ASTM D 1345

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

<b>PROPER SHIPPING NAME:</b>	Ethylene Oxide
<b>HAZARD CLASS NUMBER and DESCRIPTION:</b>	2.3 (Poison Gas)
<b>UN IDENTIFICATION NUMBER:</b>	UN 1040
<b>PACKING GROUP:</b>	Not applicable.
<b>DOT LABEL(S) REQUIRED:</b>	Poison Gas, Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 119

**MARINE POLLUTANT:** Ethylene Oxide is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL PROVISION:** This material must be described "Poison-Inhalation Hazard Zone D" on shipping papers and containers must be marked per the requirements of 49 CFR 172.313.

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilation vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**DICE 01284**



## 14. TRANSPORTATION INFORMATION (Continued)

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Ethylene Oxide is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

COMPONENT	SARA 302	SARA 304	SARA 313
Ethylene Oxide	YES	YES	YES

This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**SARA THRESHOLD PLANNING QUANTITY:** 1000 pounds.

**TSCA INVENTORY STATUS:** Ethylene Oxide is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITY (RQ):** 10 pounds

### OTHER U.S. FEDERAL REGULATIONS:

- Ethylene Oxide, is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Ethylene Oxide does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Ethylene Oxide is subject to requirements of CFR 29 1910.1000. Ethylene Oxide is listed in Table Z.1.
- Ethylene Oxide is regulated under the Ethylene Oxide Standard (29 CFR 1910.1047).
- Ethylene Oxide (also as Oxirane) is listed in 40 CFR, Part 68 (Risk Management for Chemical Release Prevention), Table 1, as an extremely hazardous and flammable substance. The threshold quantity for Ethylene Oxide under this regulation is 10,000 lbs.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Ethylene Oxide is listed in Appendix A. The threshold quantity for Ethylene Oxide, under this regulation is 5000 lbs.

**OTHER CANADIAN REGULATIONS:** Ethylene Oxide is categorized as a Controlled Product, Hazard Classes A, B1, D1A, D2A, and F, s per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Ethylene Oxide is covered under specific State regulations, as denoted below.

**Alaska - Designated Toxic and Hazardous Substances:** Ethylene Oxide.

**California - Permissible Exposure Limits for Chemical Contaminants:** Ethylene Oxide.

**Florida - Substance List:** Ethylene Oxide

**Illinois - Toxic Substance List:** Ethylene Oxide.

**Kansas - Section 302/313 List:** Ethylene Oxide.

**Michigan - Critical Materials List:** Ethylene Oxide.

**Massachusetts - Substance List:** Ethylene Oxide.

**Minnesota - List of Hazardous Substances:** Ethylene Oxide.

**Missouri - Employer Information/Toxic Substance List:** Ethylene Oxide

**New Jersey - Right to Know Hazardous Substance List:** Ethylene Oxide.

**North Dakota - List of Hazardous Chemicals, Reportable Quantities:** Ethylene Oxide.

**Pennsylvania - Hazardous Substance List:** Ethylene Oxide.

**Rhode Island - Hazardous Substance List:** Ethylene Oxide.

**Texas - Hazardous Substance List:** No

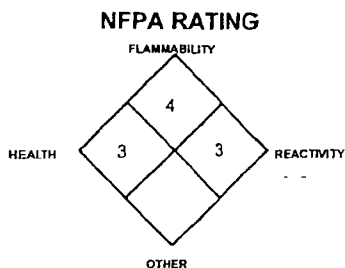
**West Virginia - Hazardous Substance List:** No.

**Wisconsin - Toxic and Hazardous Substances:** No

**CALIFORNIA PROPOSITION 65:** Ethylene Oxide is on the California Proposition 65 lists. **WARNING:** Ethylene Oxide is a substance known to the State of California to cause cancer, birth defects, and other reproductive harm.

DICE 01285

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	3
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	3
PROTECTIVE EQUIPMENT		X
EYES	RESPIRATORY	HANDS BODY
See Section 8		
For routine industrial applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923. Telephone: (703) 788-2700.

P-1 "Safe Handling of Compressed Gases in Containers"  
 AV-1 "Safe Handling and Storage of Compressed Gases"  
 "Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
 9163 Chesapeake Drive, San Diego, CA 92123-1002  
 619/565-0302

Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

DICE 01286

**Material Safety Data Sheet**

Version 3.0

Revision Date: 03/22/2007

Print Date 09/13/2007

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : **Acetone**

Product Number : 179124

Brand : Sigma-Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C<sub>3</sub>H<sub>6</sub>O

CAS-No	EC-No.	Index-No.	Concentration [%]
<b>Acetone</b>			
67-64-1	200-662-2	606-001-00-8	-

**3. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

Flammable Liquid  
Delayed target organ effects  
Moderate skin irritant  
Moderate eye irritant

**Target Organs**

Liver, Kidney

**HMIS Classification**

Health Hazard: 2

Chronic Health Hazard: \*

Flammability: 3

Physical hazards: 0

**NFPA Rating**

Health Hazard: 2

Fire: 3

Reactivity Hazard: 0

**Potential Health Effects****Inhalation**

May be harmful if inhaled. May cause respiratory tract irritation. Vapours may

**DICE 01287**

**Skin**

cause drowsiness and dizziness.

May be harmful if absorbed through skin. Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

**Eyes**

Causes eye irritation.

**Ingestion**

May be harmful if swallowed.

**4. FIRST AID MEASURES****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5. FIRE-FIGHTING MEASURES****Flammable properties**

Flash point -17 0 °C (1.4 °F) - closed cup

Ignition temperature 465 °C (869 °F)

**Suitable extinguishing media**

Carbon dioxide (CO<sub>2</sub>) For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Further information**

Use water spray to cool unopened containers.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up**

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**7. HANDLING AND STORAGE****Handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**Storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Acetone	67-64-1	TWA	500 ppm 1,188 mg/m3	1997-05-21	US American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs)
		STEL	750 ppm 1,782 mg/m3	1997-05-21	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs)
		TWA	750 ppm 1,800 mg/m3	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
Remarks	The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors.				
		STEL	1,000 ppm 2,400 mg/m3	1989-03-01	US Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
	The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors.				
		TWA	1,000 ppm 2,400 mg/m3	1993-06-30	US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants.

**DICE 01289**

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves.

### Eye protection

Safety glasses

### Skin and body protection

impervious clothing, Choose body protection according to the amount and concentration of the dangerous substance at the work place.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid, clear
Colour	colourless

### Safety data

pH	no data available
Melting point	-94.0 °C (-137.2 °F)
Boiling point	56.0 °C (132.8 °F)
Flash point	-17.0 °C (1.4 °F) - closed cup
Ignition temperature	465 °C (869 °F)
Lower explosion limit	2 %(V)
Upper explosion limit	13 %(V)
Vapour pressure	533.3 hPa (400.0 mmHg) at 39.5 °C (103.1 °F) 245.3 hPa (184.0 mmHg) at 20.0 °C (68.0 °F)
Density	0.79 g/cm <sup>3</sup>
Water solubility	completely miscible
Partition coefficient (n-octanol/water)	log Pow: -0.24

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

Bases, Oxidizing agents, Reducing agents, Acetone reacts violently with phosphorous oxychloride.

**DICE 01290**

**Hazardous decomposition products****Hazardous decomposition products formed under fire conditions.**

Carbon oxides

**Hazardous reactions**

Vapours may form explosive mixture with air

**11. TOXICOLOGICAL INFORMATION****Acute toxicity**

LD50 Oral - rat - 5,800 mg/kg

Remarks: Behavioral: Altered sleep time (including change in righting reflex) Behavioral: Tremor.

LC50 Inhalation - rat - 8 h - 50,100 mg/m<sup>3</sup>

LD50 Dermal - guinea pig - 7,426 mg/kg

**Irritation and corrosion**

Skin - rabbit - Mild skin irritation - 24 h

Eyes - rabbit - Eye irritation - 24 h

**Sensitization**

Remarks: Chronic exposure may cause dermatitis

**Chronic exposure**

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

**12. ECOLOGICAL INFORMATION****Elimination information (persistence and degradability)**

Biodegradability

Remarks: no data available

**Ecotoxicity effects**

Toxicity to fish

LC50 - Oncorhynchus mykiss (rainbow trout) - 5,540.00 mg/l - 96 h

Toxicity to daphnia  
and other aquatic  
invertebrates.

EC50 - Daphnia magna (Water flea) - 13,500.00 mg/l - 48 h

**Further information on ecology**

no data available

**13. DISPOSAL CONSIDERATIONS****Product**

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION****DOT (US)****DICE 01291**

UN-No : 1090      Class: 3  
Proper shipping name: Acetone

Packing group: II

**IMDG**

UN-No.: 1090      Class: 3  
Proper shipping name: ACETONE  
Marine pollutant: No

Packing group: II

EMS-No. F-E, S-D

**IATA**

UN-No.: 1090      Class: 3  
Proper shipping name: Acetone

Packing group: II

**15. REGULATORY INFORMATION**

**OSHA Hazards**

Flammable Liquid, Delayed target organ effects, Moderate skin irritant, Moderate eye irritant

**TSCA Status**

On TSCA Inventory

**DSL Status**

All components of this product are on the Canadian DSL list.

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Acetone	67-64-1	1989-12-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Acetone	67-64-1	1989-12-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Acetone	67-64-1	1989-12-01

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

**16. OTHER INFORMATION**

**Further information**

Copyright (2007): Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only., The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale

**DICE 01292**



## SIGMA-ALDRICH

## MATERIAL SAFETY DATA SHEET

Date Printed: 09/13/2007  
Date Updated: 02/02/2006  
Version 1.4

## Section 1 - Product and Company Information

Product Name METHANETHIOL, 99.5+%  
Product Number 295515  
Brand ALDRICH  
  
Company Sigma-Aldrich  
Address 3050 Spruce Street  
SAINT LOUIS MO 63103 US  
  
Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
METHANETHIOL	74-93-1	Yes

Formula CH4S  
Synonyms Mercaptan methylique (French) \* Mercaptomethane \*  
Methaanthiol (Dutch) \* Methanethiol (OSHA) \*  
Methanthiol (German) \* Methvtiolo (Italian) \*  
Methylmercaptan (Dutch) \* Methyl mercaptan  
(ACGIH:OSHA) \* Metilmercaptano (Italian) \* RCRA  
waste number U153 \* Thiomethanol \* Thiomethyl  
alcohol  
RTECS Number: PB4375000

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Flammable (USA) Extremely Flammable (EU). Highly Toxic (USA) Toxic (EU). Dangerous for the environment.  
Very toxic by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Highly toxic if inhaled. Target organ(s): Nerves. Blood.

## HMIS RATING

HEALTH: 4\*  
FLAMMABILITY: 4  
REACTIVITY: 0

## NFPA RATING

HEALTH: 4  
FLAMMABILITY: 4  
REACTIVITY: 0

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

DICE 01293

#### ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

#### EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

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### Section 5 - Fire Fighting Measures

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#### FLAMMABLE HAZARDS

Flammable Hazards: Yes

#### EXPLOSION HAZARDS

Container explosion may occur under fire conditions. May form explosive mixtures with air

#### FLASH POINT

- 0.4 °F - 18.0 °C Method: closed cup

#### EXPLOSION LIMITS

Lower: 3.9 % Upper: 21.8 %

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Extremely flammable. Emits toxic fumes under fire conditions.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

**DICE 01294**

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

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## Section 7 - Handling and Storage

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### HANDLING

User Exposure: Do not breathe gas. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

### STORAGE

Suitable: Store in a cool dry place. Cylinder temperature should not exceed 125°F (52°C).

### SPECIAL REQUIREMENTS

Stench. Contents under pressure.

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## Section 8 - Exposure Controls / PPE

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### ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.  
Warning: suck-back into cylinder may cause rupture. Use back-flow-preventive device in piping.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.  
Hand: Compatible chemical-resistant gloves.  
Eye: Chemical safety goggles.

### GENERAL HYGIENE MEASURES

Remove and wash contaminated clothing promptly. Wash thoroughly after handling.

### EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.5 PPM
USA	MSHA Standard-air	TWA	0.5 PPM (1 MG/M3)
USA	OSHA.	PEL	CL 10 PPM (20 MG/M3)
New Zealand	OEL		
Remarks:	check ACGIH TLV		
USA	NIOSH	Ceiling	co0.5 PPM/15M

### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1 MG/M3
Poland		NDSCh	2 MG/M3
Poland		NDSP	-

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## Section 9 - Physical/Chemical Properties

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Appearance                      Color: Colorless  
                                    Form: Clear liquid

**DICE 01295**

Property	Value	At Temperature or Pressure
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Molecular Weight	48.11 AMU	
pH	N/A	
BP/BP Range	6 °C	760 mmHg
MP/MP Range	- 123.0 °C	
Freezing Point	N/A	
Vapor Pressure	1536 mmHg	20 °C
Vapor Density	1.66 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	- 0.4 °F - 18.0 °C	Method: closed cup
Explosion Limits	Lower: 3.9 %	
	Upper: 21.8 %	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Conditions to Avoid: Moisture.

Materials to Avoid: Strong bases Avoid contact with metals.,  
Strong oxidizing agents, Strong reducing agents, Halogenated  
solvents, Organic materials, Zinc Copper, Copper alloys

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide,  
Sulfur oxides, Hydrogen sulfide gas.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Toxic if inhaled. Material is irritating to mucous  
membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

### TARGET ORGAN(S) OR SYSTEM(S)

Nerves. Blood. Liver.

### SIGNS AND SYMPTOMS OF EXPOSURE

DICE 01296

Nausea, headache, and vomiting. Dizziness. Weakness. Incoordination. Tremors. Unconsciousness. Anemia. Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Exposure can cause: Cyanosis.

#### TOXICITY DATA

Inhalation

Rat

675 ppm

LC50

Remarks: Kidney, Ureter, Bladder:Urine volume increased.

Gastrointestinal:Hypermotility, diarrhea. Lungs, Thorax, or Respiration:Other changes.

Inhalation

Mouse

6.53 mg/m3

LC50

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#### Section 12 - Ecological Information

No data available.

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#### Section 13 - Disposal Considerations

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##### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

##### APPROPRIATE METHOD OF DISPOSAL OF CONTAMINATED PACKAGING

Caution: no-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue. Follow proper disposal techniques.

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#### Section 14 - Transport Information

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##### DOT

Proper Shipping Name: Methyl mercaptan

UN#: 1064

Class: 2.3

Packing Group: None

Hazard Label: Poison gas

Hazard Label: Flammable gas

PIH: Zone C

##### IATA

Proper Shipping Name: Methyl mercaptan

IATA UN Number: 1064

Hazard Class: 2.3

Not Allowed - Aircraft: Cargo aircraft only. Not permitted on passenger aircraft.

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#### Section 15 - Regulatory Information

**DICE 01297**

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##### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: F+-T-N

Indication of Danger: Extremely Flammable. Toxic. Dangerous for the environment.

R: 12-23-50/53

Risk Statements: Extremely flammable. Toxic by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects

in the aquatic environment.

S: 16-25-60-61

Safety Statements: Keep away from sources of ignition - no smoking. Avoid contact with eyes. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Extremely Flammable (EU). Highly Toxic (USA) Toxic (EU). Dangerous for the environment. Risk Statements: Very toxic by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Avoid contact with eyes. This material and its container must be disposed of as hazardous waste. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

US Statements: Highly toxic if inhaled. Target organ(s): Nerves. Blood.

#### UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

DEMINIMIS: 1 %

NOTES: This product is subject to SARA section 313 reporting requirements.

TSCA INVENTORY ITEM: Yes

#### CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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#### Section 16 - Other Information

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#### DISCLAIMER

For R&D use only. Not for drug, household or other uses.

#### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

DICE 01298

**Material Safety Data Sheet**

Version 3.1  
Revision Date 05/17/2007  
Print Date 09/13/2007

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : **Hexane**  
Product Number : 139386  
Brand : Aldrich  
Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA  
Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : n-Hexane  
Formula : C<sub>6</sub>H<sub>14</sub>  
Molecular Weight : 86.18 g/mol

CAS-No.	EC-No.	Index-No.	Concentration [%]
<b>n-Hexane</b>			
110-54-3	203-777-6	601-037-00-0	-

**3. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

Flammable Liquid  
Delayed target organ effects  
Mild eye irritant  
Reproductive hazard

**Target Organs**

Peripheral nervous system., Kidney, Testes.

**HMIS Classification**

Health Hazard: 2  
Chronic Health Hazard: \*  
Flammability: 3  
Physical hazards: 0

**NFPA Rating**

Health Hazard: 2  
Fire: 3  
Reactivity Hazard: 0

**DICE 01299**

### Potential Health Effects

**Inhalation**

May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.

**Skin**

May be harmful if absorbed through skin. May cause skin irritation.

**Eyes**

May cause eye irritation.

**Ingestion**

Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed

## 4. FIRST AID MEASURES

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area

**If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## 5. FIRE-FIGHTING MEASURES

**Flammable properties**

Flash point -26.0 °C (-14.8 °F) - closed cup

Ignition temperature 234 °C (453 °F)

**Suitable extinguishing media**

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Further information**

Use water spray to cool unopened containers.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up**

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

## 7. HANDLING AND STORAGE

**Handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

DICE 01300



**Storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Update	Basis
n-Hexane	110-54-3	TWA	50 ppm	1998-09-01	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004; Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs)
Remarks	1998 Adoption Substances for which there is a Biological Exposure Index or Indices.				
		TWA	50 ppm 180 mg/m <sup>3</sup>	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
		TWA	500 ppm 1,800 mg/m <sup>3</sup>	1993-06-30	US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants.

**Personal protective equipment****Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

**Hand protection**

Handle with gloves.

**Eye protection**

Safety glasses

**Skin and body protection**

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid
Colour	colourless

### Safety data

pH	7.0
Melting point	-95.0 °C (-139.0 °F)
Boiling point	68.0 - 70.0 °C (154.4 - 158.0 °F)
Flash point	-26.0 °C (-14.8 °F) - closed cup
Ignition temperature	234 °C (453 °F)
Lower explosion limit	1.2 %(V)
Upper explosion limit	7.7 %(V)
Vapour pressure	341.3 hPa (256.0 mmHg) at 37.7 °C (99.9 °F) 176.0 hPa (132.0 mmHg) at 20.0 °C (68.0 °F)
Density	0.66 g/cm <sup>3</sup>
Water solubility	insoluble
Partition coefficient (n-octanol/water)	log Pow: 3.90 - 4.11

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Conditions to avoid

Heat, flames and sparks

### Materials to avoid

Oxidizing agents

### Hazardous decomposition products

**Hazardous decomposition products formed under fire conditions.**

Carbon oxides

### Hazardous reactions

Vapours may form explosive mixture with air.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD50 Oral - rat - 25,000 mg/kg

LC50 Inhalation - rat - 4 h - 48000 ppm

### Irritation and corrosion

Eyes - rabbit - Mild eye irritation

### Sensitization

no data available

### Chronic exposure

Carcinogenicity - rat - Inhalation

**DICE 01302**

Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic Effects: Testicular tumors.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

### Signs and Symptoms of Exposure

Prolonged or repeated contact with skin may cause: defatting, Dermatitis, Contact with eyes can cause: Redness, Blurred vision, Provokes tears., Effects due to ingestion may include: Gastrointestinal discomfort, Central nervous system depression, Lung irritation, chest pain, pulmonary edema, giddiness, slowed reaction time, slurred speech, Headache, Dizziness, Drowsiness, Unconsciousness

### Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.
Target Organs	Peripheral nervous system., Kidney, Testes.,

## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

no data available

### Ecotoxicity effects

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 2.5 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 3,878.00 mg/l - 48 h
Toxicity to algae	EC50 - Chlorella vulgaris (Fresh water algae) - 12,840.00 mg/l - 3 h EC50 - SKELETOMA - 0.30 mg/l - 8 h

### Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 13. DISPOSAL CONSIDERATIONS

### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

### Contaminated packaging

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN-No.: 1208      Class: 3      Packing group: II  
Proper shipping name: Hexanes

### IMDG

UN-No.: 1208      Class: 3      Packing group: II      EMS-No: F-E, S-D  
Proper shipping name: HEXANES

**DICE 01303**

Marine pollutant: No

**IATA**

UN-No : 1208      Class: 3  
Proper shipping name: Hexanes

Packing group: II

**15. REGULATORY INFORMATION**

**OSHA Hazards**

Flammable Liquid, Delayed target organ effects, Mild eye irritant, Reproductive hazard

**TSCA Status**

On TSCA Inventory

**DSL Status**

All components of this product are on the Canadian DSL list.

**SARA 302 Components**

SARA 302. No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

**SARA 313 Components**

	CAS-No.	Revision Date
n-Hexane	110-54-3	1995-01-01

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
n-Hexane	110-54-3	1995-01-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
n-Hexane	110-54-3	1995-01-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
n-Hexane	110-54-3	1995-01-01

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

**16. OTHER INFORMATION**

**Further information**

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**DICE 01304**

**Material Safety Data Sheet**

Version 3.1  
Revision Date 05/14/2007  
Print Date 09/13/2007

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : **Dichloromethane**

Product Number : D7566  
Brand : Sigma

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Methylene chloride

Formula : CH<sub>2</sub>Cl<sub>2</sub>  
Molecular Weight : 84.93 g/mol

CAS-No.	EC-No	Index-No	Concentration [%]
<b>Methylene chloride</b>			
75-09-2	200-838-9	602-004-00-3	-

**3. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

Delayed target organ effects  
Mild eye irritant  
Carcinogen  
Teratogen

**Target Organs**

Liver, pancreas, Blood

**HMIS Classification**

Health Hazard: 2  
Chronic Health Hazard: \*  
Flammability: 1  
Physical hazards: 1

**NFPA Rating**

Health Hazard: 2  
Fire 1  
Reactivity Hazard: 0

**DICE 01305**

### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation
<b>Eyes</b>	May cause eye irritation
<b>Ingestion</b>	May be harmful if swallowed

### 4. FIRST AID MEASURES

#### General advice

Consult a physician Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

#### If swallowed

Never give anything by mouth to an unconscious person Rinse mouth with water. Consult a physician.

### 5. FIRE-FIGHTING MEASURES

#### Flammable properties

Flash point 100.0 °C (212.0 °F)

Ignition temperature 556.1 °C (1,033.0 °F)

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

#### Environmental precautions

Do not let product enter drains.

#### Methods for cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste Keep in suitable, closed containers for disposal.

### 7. HANDLING AND STORAGE

#### Handling

Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.

#### Storage

Keep container tightly closed in a dry and well-ventilated place.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

DICE 01306

#### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Methylene chloride	75-09-2	TWA	50 ppm 174 mg/m <sup>3</sup>	1996-05-18	US. American Conference of Governmental and

					Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment, Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs)
Remarks	Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL.\ line Substance identified by other sources as a suspected or confirmed human carcinogen.\ line Refers to Appendix A -- Carcinogens.\ line 1996 Adoption				
		STEL	125 ppm	1997-04-04	US Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910 1000 Z-1-A
	See 1910.1052 Methylene chloride 63FR50711, 9/22/98 - Amended OSHA standard by adding provision for temporary medical removal protection benefits for employees and startup dates 62 FR 66275, 12/18/997 - OSHA issued partial stay of start-up dates for compliance See 29 CFR 1910.1052				
		TWA	25 ppm	1997-04-04	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910 1000 Z-1-A
	See 1910 1052 Methylene chloride 63FR50711, 9/22/98 - Amended OSHA standard by adding provision for temporary medical removal protection benefits for employees and startup dates. 62 FR 66275, 12/18/997 - OSHA issued partial stay of start-up dates for compliance. See 29 CFR 1910.1052				
		STEL	125 ppm	1997-04-04	US. Department of Labor - Occupational Safety and Health Administration; (OSHA) Standards, Toxic and Hazardous Substances, Subpart Z 29 CFR Part 1910.1000, Table Z-2
	See 1910.1052 Methylene chloride (Z37.23-1969)				
		TWA	25 ppm	1997-04-04	US. Department of Labor - Occupational Safety and Health Administration; (OSHA) Standards, Toxic and Hazardous Substances, Subpart Z 29 CFR Part 1910 1000, Table Z-2
	See 1910.1052 Methylene chloride (Z37.23-1969)				

**DICE 01307**

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves.

### Eye protection

Safety glasses

### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid
Colour	colourless

### Safety data

pH	no data available
Melting point	-97.0 °C (-142.6 °F)
Boiling point	40.0 °C (104.0 °F)
Flash point	100.0 °C (212.0 °F)
Ignition temperature	556.1 °C (1,033.0 °F)
Lower explosion limit	12 %(V)
Upper explosion limit	19 %(V)
Vapour pressure	470.8 hPa (353.1 mmHg) at 20.0 °C (68.0 °F) 1,687.3 hPa (1,265.6 mmHg) at 55.0 °C (131.0 °F)
Density	1.32 g/cm <sup>3</sup>
Water solubility	slightly soluble
Partition coefficient (n-octanol/water)	log Pow: 1.25

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Materials to avoid

Alkali metals, Aluminum, Strong oxidizing agents, Bases

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions.

Carbon oxides, Hydrogen chloride gas, Phosgene gas

**DICE 01308**



## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD50 Oral - rat - 1,600 mg/kg

Remarks: Behavioral:Ataxia.

LC50 Inhalation - rat - 52,000 mg/m3

### Irritation and corrosion

Skin - rabbit - Skin irritation - 24 h

Eyes - rabbit - Mild eye irritation - 24 h

### Sensitization

no data available

### Chronic exposure

Carcinogenicity - rat - Inhalation

Tumorigenic: Carcinogenic by RTECS criteria. Endocrine Tumors.

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Genotoxicity in vivo - rat - Oral

DNA damage

Laboratory experiments have shown teratogenic effects.

### Signs and Symptoms of Exposure

Dichloromethane is metabolized in the body producing carbon monoxide which increases and sustains carboxyhemoglobin levels in the blood, reducing the oxygen-carrying capacity of the blood., Acts as a simple asphyxiant by displacing air., anesthetic effects, Difficulty in breathing, Headache, Dizziness, Prolonged or repeated contact with skin may cause:, defatting, Dermatitis, Contact with eyes can cause:, Redness, Blurred vision, Provokes tears., Effects due to ingestion may include:, Gastrointestinal discomfort, Central nervous system depression, Paresthesia., Drowsiness, Convulsions, Conjunctivitis., Pulmonary edema. Effects may be delayed., Irregular breathing., Stomach/intestinal disorders, Nausea, Vomiting, Increased liver enzymes., Weakness, Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material., Abdominal pain

### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Target Organs</b>	Liver, pancreas, Blood,

## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

no data available

### Ecotoxicity effects

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 193.00 mg/l - 96 h NOEC - Cyprinodon variegatus (sheepshead minnow) - 130 mg/l - 96 h
Toxicity to daphnia and other aquatic	EC50 - Daphnia magna (Water flea) - 1,682.00 mg/l - 48 h

invertebrates.

**Further information on ecology**

no data available

**13. DISPOSAL CONSIDERATIONS**

**Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**DOT (US)**

UN-No.: 1593      Class: 6.1      Packing group: III  
Proper shipping name: Dichloromethane

**IMDG**

UN-No.: 1593      Class: 6.1      Packing group: III      EMS-No: F-A, S-A  
Proper shipping name: DICHLOROMETHANE  
Marine pollutant: No

**IATA**

UN-No.: 1593      Class: 6.1      Packing group: III  
Proper shipping name: Dichloromethane

**15. REGULATORY INFORMATION**

**OSHA Hazards**

Delayed target organ effects, Mild eye irritant, Carcinogen, Teratogen

**TSCA Status**

On TSCA Inventory

**DSL Status**

All components of this product are on the Canadian DSL list

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

	CAS-No.	Revision Date
Methylene chloride	75-09-2	1987-01-01

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Methylene chloride	75-09-2	1987-01-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Methylene chloride	75-09-2	1987-01-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Methylene chloride	75-09-2	1987-01-01

**California Prop. 65 Components**

WARNING! This product contains a chemical known in the State of California to cause cancer.  
Methylene chloride

CAS-No  
75-09-2

Revision Date  
1992-10-26

**16. OTHER INFORMATION****Further information**

Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only., The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

**DICE 01311**



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS:**

**BUTANE**

**SYNONYMS:** n-Butane; Normal Butane; Butyl Hydride, Methylethylmethane

**CHEMICAL FAMILY NAME:** Alkane (hydrocarbon)

**FORMULA:** C<sub>4</sub>H<sub>10</sub>

**PRODUCT USE:**

Document Number: 10035

For fuels and analytical/synthetic chemical,  
welding and topical propellant uses.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896

Fax on Demand: 1-800/231-1366

**DICE 01312**

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW.** Butane is a colorless, liquefied, flammable gas, with a faint, disagreeable odor. The liquefied gas rapidly turns into a gas at standard atmospheric temperatures and pressures. Both the liquid and gas pose a serious fire hazard when accidentally released. The gas is heavier than air, and may spread long distances. Distant ignition and flashback are possible. Rapid escape of the gas from the cylinder may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of Butane can cause the cylinder to burst or rupture without activating the cylinder's relief devices. Butane is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant route of over-exposure for Butane is by inhalation.

**INHALATION:** At high concentrations, Butane has anesthetic effects. High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Butane in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

**CONCENTRATION**

12-16% Oxygen

10-14% Oxygen:

6-10% Oxygen.

Below 6%

**SYMPTOM OF EXPOSURE**

Breathing and pulse rate increased, muscular coordination slightly disturbed.

Emotional upset, abnormal fatigue, disturbed respiration.

Nausea and vomiting, collapse or loss of consciousness

Convulsive movements, possible respiratory collapse, and death

**OTHER POTENTIAL HEALTH EFFECTS.** Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact can quickly subside.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to n-Butane may cause the following health effects:

**ACUTE.** The most significant hazard associated with Butane is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color. Contact with the liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact can quickly subside.

**CHRONIC.** There are currently no known adverse health effects associated with chronic exposure to this compressed gas.

**TARGET ORGANS.** Respiratory system.

DICE 01313

### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Butane	106-97-8	95%	800	NE	800 (Vacated 1989 PEL)	NE	NE	NIOSH REL 800 ppm DFG MAK 1000 ppm
Maximum Impurities		<5%	None of the trace impurities in Butane contribute significantly to the hazards associated with the product. All hazard information pertinent to Butane has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-1993 format.

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO BUTANE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.**

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

**SKIN EXPOSURE:** In the event of frostbite, remove any clothing that may restrict circulation to any frozen area. Do not rub frozen parts as tissue damage may occur. As soon as practicable, place any affected area in warm water bath which has a temperature that does not exceed 105°F (40°C). NEVER USE HOT WATER. NEVER USE DRY HEAT. If area of frostbite is extensive, and if possible, remove clothing while showering with warm water. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT (Closed Cup):** -60°C (-76°F)

**AUTOIGNITION TEMPERATURE:** 287°C (550°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 1.8%

Upper (UEL): 8.4%

**FIRE EXTINGUISHING MATERIALS.** Extinguish Butane fires by shutting-off the source of the gas. Use water spray or a foam agent to cool fire-exposed containers, structures, and equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide.

DICE 01314

## 5. FIRE-FIGHTING MEASURES (Continued)

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of Butane can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Static discharge may cause Butane to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE.** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. Adequate fire protection must be provided.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response. Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (1.8%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus.

Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of Butane could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES:** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

DICE 01315

## 7. HANDLING AND STORAGE (Continued)

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame.

Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with Butane.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS:

THREADED: Gas Withdrawal - CGA 510  
Liquid Withdrawal - CGA 555

PIN-INDEXED YOKE: Not applicable

ULTRA HIGH INTEGRITY Not applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Butane does not reach its lower flammability limit of 1.8%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION.** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of Butane. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of Butane. Otherwise, wear glove protection appropriate to the specific operation for which Butane is used.

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

DICE 01316



## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.15537 lb/ft<sup>3</sup> (2 489 kg/m<sup>3</sup>)

**BOILING POINT:** -0.5°C (31.1 F)

**FREEZING/MELTING POINT (@ 10 psig):** -138.4°C (-216.9°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 2.0064

**SOLUBILITY IN WATER vol/vol at 37.8°C (100°F):** 0.000 061

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**ODOR THRESHOLD:** 50,000 ppm

**VAPOR PRESSURE @ 1.1°C (70°F) psig:** 16.54

**COEFFICIENT WATER/OIL DISTRIBUTION** Log K<sub>ow</sub> = 2 89

**APPEARANCE AND COLOR.** Colorless, gas The liquid is also colorless

**pH** Not applicable

**MOLECULAR WEIGHT:** 58.12

**EXPANSION RATIO.** Not applicable

**SPECIFIC VOLUME (ft<sup>3</sup>/lb)** 6 3356

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The faint disagreeable odor may be a warning property In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY.** Stable

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following information is for pure Butane.

LC50 (mouse, inhalation) 680g/m<sup>3</sup>; 2-hour duration of exposure

LC50 (rat, inhalation): 658 mg/L, 4-hour duration of exposure

INHALATION (mouse) Butane is reported to be anesthetic to mice at 13% concentration in 25 minutes, at 22% in 1 minute.

INHALATION ( dog) Butane is reported to be anesthetic to dogs at 25% concentration Butane is also a weak cardiac sensitizer (high concentrations can cause abnormal heartbeats in animals under stress)

**SUSPECTED CANCER AGENT:** Butane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Butane is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue

**SENSITIZATION TO THE PRODUCT:** Butane is not known to cause sensitization in humans, however, some animals studies indicate that exposure to Butane can cause weak cardiac sensitization.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Butane on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Butane.

Embryotoxycity. No embryotoxic effects have been described for Butane.

Teratogenicity: No teratogenicity effects have been described for Butane.

Reproductive Toxicity No reproductive toxicity effects have been described for Butane.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to the components of Butane.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary; treat symptoms; reduce or eliminate exposure

**BIOLOGICAL EXPOSURE INDICES (BEIs).** Currently, Biological Exposure Indices (BEIs) are not applicable for Butane.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas. The following environmental data are available for Butane.

**BUTANE:** Log  $K_{ow}$  = 2.89 Water Solubility = 6.4 ppm at 25°C Log BCF (n-butane) = calculated, 1.78 and 1.97, respectively. Expected Half-life = 0.13 hr Bioconcentration factors do not indicate that bioconcentration in aquatic organisms is important.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on Butane's effects on aquatic life.

### 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

### 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

<b>PROPER SHIPPING NAME.</b>	Butane	<b>ALTERNATE DESCRIPTION:</b>
<b>HAZARD CLASS NUMBER and DESCRIPTION.</b>	2.1 (Flammable Gas)	Petroleum gases, liquefied
<b>UN IDENTIFICATION NUMBER.</b>	UN 1011	2.1 (Flammable Gas)
<b>PACKING GROUP.</b>	Not applicable	UN 1075
<b>DOT LABEL(S) REQUIRED</b>	Flammable Gas	Not applicable.
<b>NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996)</b>	116	Flammable Gas

**MARINE POLLUTANT:** Butane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

### 15. REGULATORY INFORMATION

**U.S. SARA REPORTING REQUIREMENTS:** Butane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act. This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**U.S. SARA Threshold Planning Quantity:** Not applicable.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

**CANADIAN DSL INVENTORY STATUS:** Butane is listed on the Canadian DSL Inventory.

**U.S. TSCA INVENTORY STATUS:** Butane is listed on the TSCA Inventory.

## 15. REGULATORY INFORMATION (Continued)

### OTHER U.S. FEDERAL REGULATIONS

- Butane was subject to the requirements of CFR 29 1910.1000 (under the 1989 PELs). Butane is no longer listed on Table Z 1
- Generally recognized as safe (GRAS) as an approved, propellant and pharmaceutical for topicals.
- Butane is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Depending on specific operations involving the use of Butane, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Butane is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Butane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Butane is listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance. The threshold quantity for butane under this regulation is 10,000 lbs.

**OTHER CANADIAN REGULATIONS:** Butane is categorized as a Controlled Product, Hazard Classes A, and B1, as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Butane is covered under specific State regulations, as denoted below:

**Alaska** - Designated Toxic and Hazardous Substances: Butane

**California** - Permissible Exposure Limits for Chemical Contaminants: Butane

**Florida** - Substance List: No

**Illinois** - Toxic Substance List: Butane

**Kansas** - Section 302/313 List: No

**Massachusetts** - Substance List: Butane

**Michigan** - Critical Materials Register: No

**Minnesota** - List of Hazardous Substances: Butane

**Missouri** - Employer Information/Toxic Substance List: Butane

**New Jersey** - Right to Know Hazardous Substance List: Butane

**North Dakota** - List of Hazardous Chemicals, Reportable Quantities: No

**Pennsylvania** - Hazardous Substance List: Butane

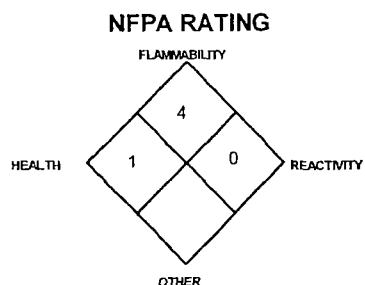
**Rhode Island** - Hazardous Substance List: Butane

**Texas** - Hazardous Substance List: No.

**West Virginia** - Hazardous Substance List: No

**Wisconsin** - Toxic and Hazardous Substances: No

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	1
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

## 16. OTHER INFORMATION (Continued)

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

P-1	"Safe Handling of Compressed Gases in Containers"
P-14	"Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"
SB-8	"Use of Oxy-fuel Gas Welding and Cutting Apparatus"
SB-2	"Oxygen Deficient Atmospheres"
	"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to Butane. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If Butane is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U S OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: ISOBUTANE**

**SYNONYMS:** 2-Methylpropane;

**CHEMICAL FAMILY:** Alkane (hydrocarbon)

**FORMULA:** C<sub>4</sub>H<sub>10</sub>

### **PRODUCT USE**

Document Number. 20101

For fuel and synthetic chemical use; food additive, agricultural uses, aerosol propellant, refrigerant.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE.**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand:

1-800/231-1366

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW** This product is a colorless, liquefied, flammable gas. Both the liquid and gas pose a serious fire hazard when accidentally released. Rapid evaporation of liquid from cylinder may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to burst or rupture without activating the cylinder's relief devices. Isobutane is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant route of over-exposure for this product is by inhalation.

**INHALATION** Isobutane also has some degree of anesthetic action and can be mildly irritating to the mucous membranes. Isobutane can also be a narcotic at high concentrations. High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Isobutane in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing an oxygen deficient atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

### CONCENTRATION

12-16% Oxygen:

10-14% Oxygen:

6-10% Oxygen:

Below 6%:

### SYMPTOM OF EXPOSURE

Breathing and pulse rate increased, muscular coordination slightly disturbed.

Emotional upset, abnormal fatigue, disturbed respiration

Nausea and vomiting, collapse or loss of consciousness

Convulsive movements, possible respiratory collapse, and death

**OTHER POTENTIAL HEALTH EFFECTS:** Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after such contact can quickly subside.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Over-exposure to this gas mixture may cause the following health effects:

**ACUTE:** The most significant hazard associated with this product is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no known adverse health effects associated with chronic exposure to the components of this compressed gas.

**TARGET ORGANS:** Respiratory system.

### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH Ppm	
Isobutane	75-28-5	> 95%	Simple Asphyxiant	NE	800 (Vacated 1989 PEL)	NE	NE	NIOSH REL 800 ppm
Maximum Impurities		<5%	None of the trace impurities in this product significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

**SKIN EXPOSURE:** Exposure to the liquefied gas can cause frostbite. Remove any clothing that may restrict circulation to any frozen area. Do not rub frozen parts as tissue damage may occur. As soon as practicable, place any affected area in warm water bath which has a temperature that does not exceed 105°F (40°C). NEVER USE HOT WATER. NEVER USE DRY HEAT. If area of frostbite is extensive, and if possible, remove clothing while showering with warm water. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** -159°C (-254°F)

**AUTOIGNITION TEMPERATURE:** 462°C (864°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 1.8%

Upper (UEL): 8.4%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Isobutane fires by shutting-off the source of the gas. Use water spray to cool fire-exposed containers, structures, and equipment.

### 5. FIRE-FIGHTING MEASURES (Continued)



**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Static discharge may cause this product to ignite explosively, if released

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (1.8%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES.** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

## 7. HANDLING AND STORAGE (Continued)

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS.** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with this product.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS:

THREADED: 0-500 PSIG - CGA 510

PIN-INDEXED YOKE: Not Applicable

ULTRA HIGH INTEGRITY: Not Applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure isobutane does not reach its lower flammability limit of 1.8%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of this product. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION** Safety glasses.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used. Use low-temperature protective gloves when working with containers of Liquid Isobutane.

**BODY PROTECTION** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.114 74 lb/ft<sup>3</sup> (2.4787 kg/m<sup>3</sup>)

**BOILING POINT:** -11.72°C (10.9°F)

**FREEZING/MELTING POINT @ 10 psig:** -159°C (-255.3°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 2.006 36      **pH:** Not applicable.

**SOLUBILITY IN WATER vol/vol @ 37.8°C (100°F):** 0.052      **MOLECULAR WEIGHT:** 58.12

**EVAPORATION RATE (nBuAc = 1):** Not applicable

**EXPANSION RATIO:** Not applicable

**ODOR THRESHOLD:** 1800 mg/m<sup>3</sup>

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 6.33

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** 30.58

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR.** Colorless, odorless gas which is shipped as a liquefied gas under its own vapor pressure.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation

## 10. STABILITY and REACTIVITY

**STABILITY.** Stable.

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

**HAZARDOUS POLYMERIZATION** Will not occur

**CONDITIONS TO AVOID** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA.** The following toxicology data are available for Isobutane:

**ISOBUTANE:**

Inhalation-Rat LC<sub>50</sub> 57 pph/ 15 minute

Inhalation-Mouse LC<sub>Lo</sub> 1041 g/m<sup>3</sup>/ 2 hour

**SUSPECTED CANCER AGENT:** Isobutane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Isobutane can cause some irritation to mucus membranes. In addition, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION TO THE PRODUCT:** Isobutane is not known to cause sensitization in humans; however, Isobutane is considered a weak heart sensitizing agent, based on animal tests

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Isobutane on the human reproductive system.

Mutagenicity No mutagenicity effects have been described for Isobutane

Embryotoxicity No embryotoxic effects have been described for Isobutane.

Teratogenicity No teratogenicity effects have been described for Isobutane.

Reproductive Toxicity No reproductive toxicity effects have been described for Isobutane

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

## 11. TOXICOLOGICAL INFORMATION (Continued)

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to Isobutane

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Isobutane.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary; treat symptoms, reduce or eliminate exposure.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:**

Isobutane

**ALTERNATE DESCRIPTION:**

Petroleum gases, liquefied

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.1 (Flammable Gas)

2.1 (Flammable Gas)

**UN IDENTIFICATION NUMBER:**

UN 1969

UN 1075

**PACKING GROUP:**

Not applicable

Not applicable.

**DOT LABEL(S) REQUIRED:**

Flammable Gas

Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 115

**MARINE POLLUTANT:** Isobutane is not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B)

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Isobutane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act. This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**TSCA INVENTORY STATUS:** Isobutane is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

## 15. REGULATORY INFORMATION (Continued)

### OTHER U.S. FEDERAL REGULATIONS.

- Generally recognized as safe, (GRAS) as a direct human food ingredient when used as a propellant, aerating agent and gas
- Isobutane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Isobutane is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for of this gas is 10,000 pounds.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119) Under this regulation Isobutane is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Isobutane is listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance. The threshold quantity for Isobutane under this regulation is 10,000 lbs.

**OTHER CANADIAN REGULATIONS:** Isobutane is categorized as a Controlled Product, Hazard Classes A, and B1 as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Isobutane is covered under specific State regulations, as denoted below

Alaska - Designated Toxic and Hazardous

Substances: Isobutane

California - Permissible Exposure Limits  
for Chemical Contaminants: Isobutane

Florida - Substance List: No

Illinois - Toxic Substance List: Isobutane.

Kansas - Section 302/313 List: No.

Massachusetts - Substance List: Isobutane

Minnesota - List of Hazardous Substances:  
Isobutane

Missouri - Employer Information/Toxic  
Substance List: Isobutane

New Jersey - Right to Know Hazardous  
Substance List: Isobutane

North Dakota - List of Hazardous  
Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List:

Isobutane

Rhode Island - Hazardous Substance List:  
Isobutane.

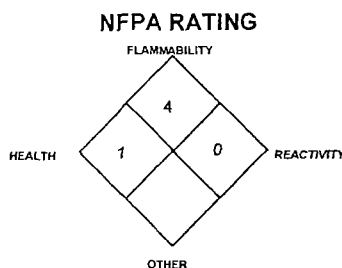
Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List:  
No

Wisconsin - Toxic and Hazardous  
Substances: No.

**CALIFORNIA PROPOSITION 65** Isobutane is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
<b>HEALTH</b>	(BLUE)	0
<b>FLAMMABILITY</b>	(RED)	4
<b>REACTIVITY</b>	(YELLOW)	0
<b>PROTECTIVE EQUIPMENT</b>		B
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

## 16. OTHER INFORMATION (Continued)

Further information can be found in the following pamphlets published by Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone. (703) 788-2700.

- P-1 "Safe Handling of Compressed Gases in Containers"
- P-14 "Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"
- SB-8 "Use of Oxy-fuel Gas Welding and Cutting Apparatus"
- SB-2 "Oxygen Deficient Atmospheres"
- "Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302  
Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: ISOBUTYLENE**

**SYNONYMS:** 2-Methylpropane; Isobutylene USP

**CHEMICAL FAMILY:** Alkane (hydrocarbon)

**FORMULA:** C<sub>4</sub>H<sub>8</sub>

**PRODUCT USE:**

Document Number. 20103

For fuel and synthetic chemical use, food additive, agricultural uses, aerosol propellant, refrigerant.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand: 1-800/231-1366

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** This product is a colorless, liquefied, flammable gas. The gas has an unpleasant odor similar to burning coal. Both the liquid and gas pose a serious fire hazard when accidentally released. Rapid evaporation of liquid from cylinder may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to burst or rupture without activating the cylinder's relief devices. Isobutylene is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Isobutylene can also be a narcotic at high concentrations. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE** The most significant route of over-exposure for this product is by inhalation.

**INHALATION** Isobutylene also has some degree of anesthetic action and can be mildly irritating to the mucous membranes. High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Isobutylene in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing an oxygen deficient atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

<u>CONCENTRATION</u>	<u>SYMPTOM OF EXPOSURE</u>
12-16% Oxygen	Breathing and pulse rate increased, muscular coordination slightly disturbed
10-14% Oxygen	Emotional upset, abnormal fatigue, disturbed respiration
6-10% Oxygen:	Nausea and vomiting, collapse or loss of consciousness
Below 6%:	Convulsive movements, possible respiratory collapse, and death

**OTHER POTENTIAL HEALTH EFFECTS:** Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after such contact can quickly subside.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to this gas mixture may cause the following health effects.

**ACUTE.** The most significant hazard associated with this product is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color. Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.

**CHRONIC** There are currently no known adverse health effects associated with chronic exposure to the components of this compressed gas.

**TARGET ORGANS:** Respiratory system.



### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH Ppm	
Isobutylene	115-11-7	> 99%	There are no specific exposure limits for Isobutylene. Isobutylene is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 1%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.**

Remove victim(s) to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen.

**SKIN EXPOSURE:** Exposure to the liquefied gas can cause frostbite. Remove any clothing that may restrict circulation to any frozen area. Do not rub frozen parts as tissue damage may occur. As soon as practicable, place any affected area in warm water bath which has a temperature that does not exceed 105°F (40°C). NEVER USE HOT WATER. NEVER USE DRY HEAT. If area of frostbite is extensive, and if possible, remove clothing while showering with warm water. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** -10°C (< 14°F)

**AUTOIGNITION TEMPERATURE:** 465°C (869°F)

**FLAMMABLE LIMITS (in air by volume, %):** Lower (LEL): 1.8% Upper (UEL): 9.6%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Isobutylene fires by shutting-off the source of the gas. Use water spray to cool fire-exposed containers, structures, and equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide.

## 5. FIRE-FIGHTING MEASURES (Continued)

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles, if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Static discharge may cause this product to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus**. Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate.

Combustible gas concentration must be below 10% of the LEL (1.8%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES:** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

## 7. HANDLING AND STORAGE (Continued)

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS.

THREADED: 0-500 PSIG - CGA 510

PIN-INDEXED YOKE: Not Applicable.

ULTRA HIGH INTEGRITY: Not Applicable

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS.** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure isobutylene does not reach its lower flammability limit of 1.8%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION.** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of this product. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used. Use low-temperature protective gloves when working with containers of Liquid Isobutylene.

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.14957 lb/ft<sup>3</sup> (2.3959 kg/m<sup>3</sup>)

**BOILING POINT** -6.9°C (19.6°F)

**FREEZING/MELTING POINT @ 10 psig** -140°C (-220.6°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 1.997

**SOLUBILITY IN WATER vol/vol @37.8°C (100°F):** Insoluble.

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**ODOR THRESHOLD** Not determined

**VAPOR PRESSURE @ 21.1°C (70°F) psig.** 23.85

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless gas which is shipped as a liquefied gas under its own vapor pressure. The gas has an unpleasant odor similar to burning coal.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The unpleasant odor may be a warning property. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

**pH:** Not applicable.

**MOLECULAR WEIGHT:** 56.108

**EXPANSION RATIO:** Not applicable.

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 6.54

## 10. STABILITY and REACTIVITY

**STABILITY** Stable

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine, pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following toxicity data are applicable for pure Isobutylene.

LC50 (inhalation, rat) = 620,000 mg/kg/4 hours

LC50 (inhalation, mouse) = 415,000 mg/kg

**SUSPECTED CANCER AGENT** Isobutylene is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Isobutylene can cause some irritation to mucous membranes. In addition, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION TO THE PRODUCT:** Isobutylene is not known to cause sensitization in humans.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Isobutylene on the human reproductive system.

Mutagenicity. No mutagenicity effects have been described for Isobutylene gas.

Embryotoxicity. No embryotoxic effects have been described for Isobutylene gas.

Teratogenicity. No teratogenicity effects have been described for this Isobutylene gas.

Reproductive Toxicity. No reproductive toxicity effects have been described for Isobutylene gas.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to the components of this product.

## 11. TOXICOLOGICAL INFORMATION (Continued)

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Isobutylene.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary, treat symptoms; reduce or eliminate exposure

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE** No evidence is currently available on this product's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

For emergency disposal, secure the cylinder and slowly discharge the gas to the atmosphere in a well-ventilated area or outdoors, away from all sources of ignition.

## 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

<b>PROPER SHIPPING NAME:</b>	Isobutylene	<b>Alternate Description:</b>
<b>HAZARD CLASS NUMBER and DESCRIPTION:</b>	2.1 (Flammable Gas)	Petroleum gases, liquefied
<b>UN IDENTIFICATION NUMBER:</b>	UN 1055	2.1 (Flammable Gas)
<b>PACKING GROUP:</b>	Not applicable.	UN 1075
<b>DOT LABEL(S) REQUIRED:</b>	Flammable Gas	Not applicable.
<b>NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):</b>	115	Flammable Gas

**MARINE POLLUTANT:** Isobutylene is not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**U.S. SARA REPORTING REQUIREMENTS:** Isobutylene is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act. This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**U.S. SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

**CANADIAN DSL INVENTORY STATUS:** Isobutylene is listed on the Canadian DSL Inventory.

**U.S. TSCA INVENTORY STATUS:** Isobutylene is listed on the TSCA Inventory.

## 15. REGULATORY INFORMATION (Continued)

### OTHER U.S. FEDERAL REGULATIONS:

- Isobutylene does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Isobutylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Isobutylene is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Isobutylene is listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance. The threshold quantity for Isobutane under this regulation is 10,000 lbs.

**OTHER CANADIAN REGULATIONS:** Isobutylene is categorized as a Controlled Product, Hazard Classes A, and B1 as per the Controlled Product Regulations.

**U.S. STATE REGULATORY INFORMATION:** Isobutylene is covered under specific State regulations, as denoted below.

**Alaska - Designated Toxic and Hazardous Substances:** Liquefied Petroleum Gas

**California - Permissible Exposure Limits for Chemical Contaminants:**

**Florida - Substance List:** Isobutylene

**Illinois - Toxic Substance List:** Liquefied Petroleum Gas

**Kansas - Section 302/313 List:** No

**Massachusetts - Substance List:** Isobutylene

**Minnesota - List of Hazardous Substances:** Isobutylene

**Missouri - Employer Information/Toxic Substance List:** Liquefied Petroleum Gas

**New Jersey - Right to Know Hazardous Substance List:** Isobutylene

**North Dakota - List of Hazardous Chemicals, Reportable Quantities:** No.

**Pennsylvania - Hazardous Substance List:** Isobutylene.

**Rhode Island - Hazardous Substance List:** Liquefied Petroleum Gas.

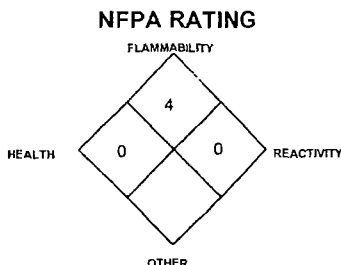
**Texas - Hazardous Substance List:** Liquefied Petroleum Gas

**West Virginia - Hazardous Substance List:** Liquefied Petroleum Gas.

**Wisconsin - Toxic and Hazardous Substances:** Liquefied Petroleum Gas.

**CALIFORNIA PROPOSITION 65:** Isobutylene is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	0
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

## 16. OTHER INFORMATION (Continued)

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

P-1	"Safe Handling of Compressed Gases in Containers"
P-14	"Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"
SB-2	"Oxygen Deficient Atmospheres"
	"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



**AIR LIQUIDE**

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: ETHANE**

**SYNONYMS:** Bimethyl, Dimethyl, Ethyl Hydride, Methylmethane

**CHEMICAL FAMILY NAME:** Saturated Aliphatic Hydrocarbon / Alkane

**FORMULA:** C<sub>2</sub>H<sub>6</sub>

**PRODUCT USE:**

Document Number: 20061  
For fuel and synthetic chemical uses;  
refrigerant.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896

Fax on Demand: 1-800/231-1366



## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Ethane is an colorless, odorless, flammable gas. The gas poses a serious fire hazard when it is accidentally released. This gas acts as a simple asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. The gas is slightly heavier than air, and may spread long distances. Distant ignition and flashback are possible. Rapid expanding gas from cylinder may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of Ethane can cause the cylinder to rupture or burst without activating the cylinder's relief devices. Provide adequate fire protection during all emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant route of over-exposure for Ethane is by inhalation.

**INHALATION:** Inhalation of concentrations above 5% can produce anesthetic effects. High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Ethane in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

<u>CONCENTRATION</u>	<u>SYMPTOM OF EXPOSURE</u>
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea and vomiting, collapse or loss of consciousness
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to Ethane may cause the following health effects.

**ACUTE.** The most significant hazard associated with Ethane is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no known adverse health effects associated with chronic exposure to this compressed gas.

**TARGET ORGANS** Respiratory system.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Ethane	74-84-0	> 95.0%	There are no specific exposure limits for Ethane. Ethane is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 5.0%	None of the trace impurities in Ethane contribute significantly to the hazards associated with the product. All hazard information pertinent to Ethane has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

#### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO ETHANE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

#### 5. FIRE-FIGHTING MEASURES

**FLASH POINT** -135°C (-211°F)

**AUTOIGNITION TEMPERATURE** 515 °C (959 °F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 3%

Upper (UEL): 12.5%

**FIRE EXTINGUISHING MATERIALS:** Extinguish fires by shutting-off the source of the gas. Use water spray or a foam agent to cool fire-exposed containers, structures, and equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this gas will decompose and produce toxic gases including carbon monoxide and carbon dioxide. An extreme fire hazard exists in areas in which the gas has been released, but the material has not yet ignited.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of Ethane can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Static discharge may cause Ethane to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A, the North American Emergency Response Guidebook.

#### 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (3%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of Ethane could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES:** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS.** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with Ethane. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS.

THREADED: 0-3000 PSIG - CGA 350

PIN-INDEXED YOKE: Not Applicable.

ULTRA HIGH INTEGRITY: Not Applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS.** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Ethane does not reach its lower flammability limit of 3%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of Ethane. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of Ethane. Otherwise, wear glove protection appropriate to the specific operation for which Ethane is used. Use low-temperature protective gloves when working with containers of Liquid Ethane.

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 101.325 kPa @ 25°C (77°F), air = 1:** 1.048

**BOILING POINT:** -88.6°C (-127.5°F)

**FREEZING/MELTING POINT (@ 10 psig):** -183.1°C (-297.9°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 1.048

**SOLUBILITY IN WATER vol/vol @ 20°C (68°F):** 0.047

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**ODOR THRESHOLD:** Not applicable.

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** 544

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless, odorless gas.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

**pH:** Not applicable.

**MOLECULAR WEIGHT:** 30.08

**EXPANSION RATIO:** Not applicable

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 12.5151

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will burn to produce carbon

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine, pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following information is for pure Ethane.

Guinea pigs breathing about 2.2 to 5% Ethane for 2 hours showed signs of irregular breathing and slight drowsiness, but no other health effects. At concentrations of 15-19%, when mixed with oxygen, Ethane is a weak cardiac sensitizer. There were no signs of anesthesia in animals breathing an ethane/oxygen mixture (80% ethane/20% oxygen) for up to 3.75 hours.

**SUSPECTED CANCER AGENT:** Ethane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Ethane is not irritating, however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

## 11. TOXICOLOGICAL INFORMATION (Continued)

**SENSITIZATION TO THE PRODUCT:** Ethane is not known to cause sensitization in humans; however, some animals studies indicate that exposure to Ethane can cause weak cardiac sensitization

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Ethane on the human reproductive system

Mutagenicity: No mutagenicity effects have been described for Ethane.

Embryotoxicity: No embryotoxic effects have been described for Ethane

Teratogenicity: No teratogenicity effects have been described for Ethane.

Reproductive Toxicity: No reproductive toxicity effects have been described for Ethane.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE.** Acute or chronic respiratory conditions may be aggravated by over-exposure to Ethane.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary; treat symptoms, reduce or eliminate exposure

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Ethane.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY** Ethane occurs naturally in the atmosphere. This gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on Ethane's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION**

**PROPER SHIPPING NAME:** Ethane, compressed

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.1 (Flammable Gas)

**UN IDENTIFICATION NUMBER:** UN 1035

**PACKING GROUP:** Not applicable.

**DOT LABEL(S) REQUIRED:** Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 115

**MARINE POLLUTANT.** Ethane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b))

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS.** Ethane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act. This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21)

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**TSCA INVENTORY STATUS:** Ethane is listed on the TSCA Inventory

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable

**OTHER U.S. FEDERAL REGULATIONS:**

- Ethane is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds
- Depending on specific operations involving the use of Ethane, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Ethane is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel
- Ethane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Ethane is listed under Table 3 as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance. The threshold quantity for butane under this regulation is 10,000 lbs

**OTHER CANADIAN REGULATIONS:** Ethane is categorized as a Controlled Product, Hazard Classes A, and B1, as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Ethane is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Ethane

California - Permissible Exposure Limits for Chemical Contaminants: Ethane

Florida - Substance List: No

Illinois - Toxic Substance List: Ethane

Kansas - Section 302/313 List: No

Massachusetts - Substance List: Ethane

Minnesota - List of Hazardous Substances: Ethane

Missouri - Employer Information/Toxic Substance List: Ethane.

New Jersey - Right to Know Hazardous Substance List: Ethane

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.

Pennsylvania - Hazardous Substance List: Ethane

Rhode Island - Hazardous Substance List: Ethane

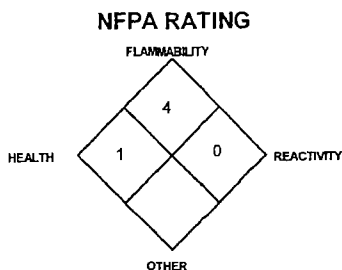
Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No.

Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65** Ethane is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH (BLUE)	0		
FLAMMABILITY (RED)	4		
REACTIVITY (YELLOW)	0		
PROTECTIVE EQUIPMENT	B		
EYES	RESPIRATORY	HANDS	BODY
See Section 8			
For routine industrial applications			

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before

**ETHANE - C<sub>2</sub>H<sub>6</sub> MSDS**

**EFFECTIVE DATE: AUGUST 31, 2005**

## 16. OTHER INFORMATION (Continued)

you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone (703) 788-2700.

P-1	"Safe Handling of Compressed Gases in Containers"
SB-8	"Use of Oxy-fuel Gas Welding and Cutting Apparatus"
AV-1	"Safe Handling and Storage of Compressed Gases"
	"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



**AIR LIQUIDE**

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to Ethane. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If Ethane is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: TETRAFLUOROMETHANE**

**SYNONYMS:** Carbon Tetrafluoromethane, Carbon Tetrafluoride; Fluorocarbon 14; FC 14;  
Freon 14, Halon 14, R-14

**CHEMICAL FAMILY NAME:** Halogenated Aliphatic Hydrocarbon

**FORMULA:** CF<sub>4</sub>

**PRODUCT USE:**

Document Number: 20159

Refrigerant; gaseous insulator; propellant in insecticidal aerosols, as a solvent; chemical intermediate; dry etchant in microchip manufacture.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896  
Fax on Demand: 1-800/231-1366



## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Tetrafluoromethane is an odorless, colorless non-flammable, liquefied gas. Tetrafluoromethane can cause central nervous system depression after inhalation exposures. Symptoms of such over-exposure can include drowsiness, fatigue, and weakness. At high concentrations, the gas can act as an asphyxiant, by displacing oxygen. Therefore, exposure to high concentrations of this gas can be fatal. Frostbite can be caused by contact with rapidly expanding gases or the liquefied gas. This gas is not flammable and not reactive in normal emergency response situations. However, if involved in a fire, this product can decompose to produce toxic gases (i.e. hydrogen fluoride, phosgene).

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant route of over-exposure for this gas is by inhalation.

**INHALATION:** Exposures to high concentrations of this gas may cause sensitization of the heart to adrenaline and nor-adrenaline. Effects of such over-exposure can include light-headedness, giddiness, shortness of breath and in extreme cases, irregular heartbeats, cardiac arrest, and death.

High concentrations of this gas can cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses.

Under some circumstances of over-exposure, death may occur, due to the displacement of oxygen. The following effects associated with various levels of oxygen are as follows:

### **CONCENTRATION**

### **SYMPTOM OF EXPOSURE**

12-16% Oxygen:

Breathing and pulse rate increased, muscular coordination slightly disturbed.

10-14% Oxygen:

Emotional upset, abnormal fatigue, disturbed respiration.

6-10% Oxygen:

Nausea and vomiting, collapse or loss of consciousness.

Below 6%:

Convulsive movements, possible respiratory collapse, and death.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to Tetrafluoromethane may cause the following health effects:

**ACUTE:** The most significant hazard associated with this gas is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no known adverse health effects associated with chronic exposure to this product.

**TARGET ORGANS:** Respiratory system.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Tetrafluoromethane	75-73-0	100	There are no specific exposure limits for Tetrafluoromethane. Tetrafluoromethane is an asphyxiant. Oxygen levels should be maintained above 19.5%.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

## 4 FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus should be worn.**

Remove victim(s) to fresh air, as quickly as possible. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Only trained personnel should administer supplemental oxygen.

## 4 FIRST-AID MEASURES (Continued)

**SKIN EXPOSURE:** Contact with the liquid or rapidly expanding gases can cause frostbite. In the event of frostbite, medical attention must be sought. Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable

**FLAMMABLE LIMITS (in air by volume, %)**

Lower (LEL): Not applicable

Upper (UEL): Not applicable.

**FIRE EXTINGUISHING MATERIALS:** Non-flammable, inert gas. Use extinguishing media appropriate for surrounding fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases (i.e. hydrogen fluoride, and carbonyl fluoride). Tetrafluoromethane does not burn, however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Minimum Personal Protective Equipment should be: **Level B: Self-Contained Breathing Apparatus.** Locate and seal the source of the leaking gas. Allow the gas, which is heavier than air to dissipate. Monitor the surrounding area for oxygen levels. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus.

If leaking incidentally from the cylinder or its valve, contact your supplier.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of this product could occur without any significant warning symptoms, due to oxygen deficiency.

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright and be firmly secured to prevent falling or being knocked-over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Use only storage containers and equipment (pipes, valves, fittings to relieve pressure, etc.) designed for the temperatures and pressures for the use and storage of Liquid Tetrafluoromethane.

Use a check valve or other protective device in the discharge line to prevent hazardous backflow. Never tamper with pressure relief valves and cylinders.

## 7. HANDLING AND STORAGE (Continued)

Keep the smallest amount necessary on-site at any one time. Full and empty cylinders should be segregated. Use a first-in, first-out inventory systems to prevent full containers from being stored for long periods of time.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used.

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc, on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for gas storage. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS:

<u>THREADED:</u>	0-3000 psig - CGA 580
<u>PIN-INDEXED YOKE:</u>	Not Applicable.
<u>ULTRA HIGH INTEGRITY:</u>	Not Applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of oxygen.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of this product. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION:** Wear leather gloves or glove protection appropriate to the specific operation for which this product is used.

**BODY PROTECTION:** Use body protection appropriate for task. Safety shoes are recommended when handling cylinders.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.228 lb/ft<sup>3</sup> (3.65 kg/m<sup>3</sup>)

**BOILING POINT @ 1 atm:** -127.9°C (198.3°F -)

**FREEZING/MELTING POINT @ 325 psia:** -183.6°C (-298.5°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F) and 1 atm:** 3.050

**SOLUBILITY IN WATER weight % @ 25°C (77°F):** 0.0015

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**ODOR THRESHOLD:** Not applicable.

**VAPOR PRESSURE:** Not applicable.

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless, odorless, non-flammable gas

**pH:** Not applicable.

**MOLECULAR WEIGHT:** 88.01

**EXPANSION RATIO:** Not applicable.

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 4.38

## 9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY:** Normally stable.

**DECOMPOSITION PRODUCTS:** If Tetrafluoromethane is exposed to fire, it may decompose yielding toxic products (i.e. hydrogen fluoride, carbonyl fluoride).

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** The following materials are not compatible with this product: aluminum, carbon dioxide above 1000 °C; alloys of more than 2% magnesium in the presence of water. Silver and copper-bearing alloys can act as catalysts for the decomposition of this product at high temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Avoid contact with incompatible materials and avoid exposing cylinders to extremely high temperatures, which could cause the cylinders to rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following information is available for Tetrafluoromethane.

LC<sub>50</sub> (inhalation, rat) = 890000 ppm/15 minutes.

**SUSPECTED CANCER AGENT:** Tetrafluoromethane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Tetrafluoromethane is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION OF PRODUCT:** Tetrafluoromethane is not known to cause sensitization in humans.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects Tetrafluoromethane on the human reproductive system.

Mutagenicity: Tetrafluoromethane is not expected to cause mutagenic effects in humans.

Embryotoxicity: Tetrafluoromethane is not expected to cause embryotoxic effects in humans.

Teratogenicity: Tetrafluoromethane is not expected to cause teratogenic effects in humans.

Reproductive Toxicity: Tetrafluoromethane is not expected to cause adverse reproductive effects in humans.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing respiratory conditions and cardio-vascular conditions may be aggravated by over-exposure to Tetrafluoromethane.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and reduce over-exposure.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Tetrafluoromethane.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** The gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to adverse effects on the cardiovascular system and to exposure to oxygen deficient environments. The symptoms experienced by over-exposed animals would be similar to those described for exposed humans. No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life.

### 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

For emergency disposal, secure the cylinder and slowly discharge the gas to the atmosphere in a well-ventilated area or outdoors.

### 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:** Tetrafluoromethane  
**HAZARD CLASS NUMBER and DESCRIPTION:** 2.2 (Non-Flammable Gas)  
**UN IDENTIFICATION NUMBER:** UN 1982  
**PACKING GROUP:** Not applicable  
**DOT LABEL(S) REQUIRED:** Non-Flammable Gas  
**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 126

**MARINE POLLUTANT:** Tetrafluoromethane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS Use the above information for the preparation of Canadian Shipments.

### 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Tetrafluoromethane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**SARA Threshold Planning Quantity:** Not applicable.

**TSCA INVENTORY STATUS:** Tetrafluoromethane is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITIES (RQ):** Not applicable.

**CALIFORNIA PROPOSITION 65:** Tetrafluoromethane is not on the California Proposition 65 lists

**STATE REGULATORY INFORMATION:** Tetrafluoromethane is covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: No.

California - Permissible Exposure Limits for Chemical Contaminants: No

Florida - Substance List: No

Illinois - Toxic Substance List: No

Kansas - Section 302/313 List: No

Massachusetts - Substance List: No

Minnesota - List of Hazardous Substances: No.

Missouri - Employer Information/Toxic Substance List: No.

New Jersey - Right to Know Hazardous Substance List: Tetrafluoromethane

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: No.

Rhode Island - Hazardous Substance List: No

Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No.

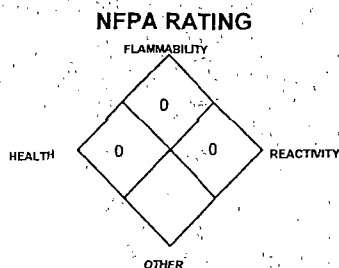
Wisconsin - Toxic and Hazardous Substances: No

#### OTHER U.S. FEDERAL REGULATIONS.

- Tetrafluoromethane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Tetrafluoromethane is not listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Accidental Release Prevention.
- Tetrafluoromethane is not subject to the reporting requirements of Section 112(r) of the Clean Air Act
- Tetrafluoromethane is not listed in Appendix A as a highly hazardous chemical, per 29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals

**OTHER CANADIAN REGULATIONS:** Tetrafluoromethane is categorized as a Controlled Product, Hazard Class A, as per the Controlled Product Regulations.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	0
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT	B	
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

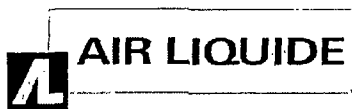
Further information about Tetrafluoromethane can be found in the following pamphlets published by Compressed Gas Association Inc (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

- P-1 "Safe Handling of Compressed Gases in Containers"
- P-14 "Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmospheres"
- SB-2 "Oxygen Deficient Atmospheres"
- AV-1 "Safe Handling and Storage of Compressed Gases"
- "Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: HEXAFLUOROETHANE**

**SYNONYMS:** Perfluoroethane; Fluorocarbon 116; Refrigerant 116; Propellant 116; Halon 116;  
Freon 116; FC 116; F-116

**CHEMICAL FAMILY NAME:** Halogenated Aliphatic Hydrocarbon

**FORMULA:** C<sub>2</sub>F<sub>6</sub>

**PRODUCT USE:**

Document Number. 20089

Refrigerant; blowing agent; aerosol propellant  
dielectric agent.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896

Fax on Demand: 1-800/231-1366

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Hexafluoroethane is an odorless, colorless non-flammable, liquefied gas. Hexafluoroethane can cause central nervous system depression after inhalation exposures. Symptoms of such over-exposure can include drowsiness, fatigue, and weakness. At high concentrations, the gas can act as an asphyxiant, by displacing oxygen. Therefore, exposure to high concentrations of this gas can be fatal. Frostbite can be caused by contact with rapidly expanding gases or the liquefied gas. This gas is not flammable and not reactive in normal emergency response situations. However, if involved in a fire, this product can decompose to produce toxic gases (i.e. hydrogen fluoride, phosgene).

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant route of over-exposure for this gas is by inhalation.

Exposures to high concentrations of this gas may central nervous system depression and cause sensitization of the heart to adrenaline and nor-adrenaline. Effects of such over-exposure can include light-headedness, giddiness, shortness of breath and in extreme cases, irregular heartbeats, cardiac arrest, and death.

Deliberate abuse of Hexafluoroethane by aerosol "sniffing" and use or misuse of bronchodilator aerosols have resulted in death. The cause of death is usually related to irregular heartbeat leading to cardiac arrest. These effects have not been reported in the workplace.

High concentrations of this gas can also cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

CONCENTRATION	SYMPTOM OF EXPOSURE
12-16% Oxygen.	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen.	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea and vomiting, collapse or loss of consciousness.
Below 6%	Convulsive movements, possible respiratory collapse, and death.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to may cause the following health effects:

**ACUTE** The most significant hazard associated with this product is inhalation of high concentrations of Hexafluoroethane. Such over-exposure can cause central nervous system depression and can cause oxygen deficiency. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color. Contact with the liquid or rapidly expanding gases can cause frostbite.

**CHRONIC:** Chronic over-exposures may cause temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath, alteration in the electrical activity of the heart with irregular pulse, palpitations or inadequate circulation. Chronic exposure has also lead to temporary reduced fertility in both men and women. All these symptoms were relieved upon cessation of the exposure.

**TARGET ORGANS:** Respiratory system, central nervous system.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL Ppm	IDLH ppm	
Hexafluoroethane	76-16-4	100	There are no specific exposure limits for Hexafluoroethane Hexafluoroethane is an asphyxiant Oxygen levels should be maintained above 19.5%					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-2004 format.



## 4 FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus should be worn.**

Remove victim(s) to fresh air, as quickly as possible. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Only trained personnel should administer supplemental oxygen.

**SKIN EXPOSURE:** Contact with the liquid or rapidly expanding gases can cause frostbite. In the event of frostbite, medical attention must be sought. Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

**FIRE EXTINGUISHING MATERIALS:** Non-flammable, inert gas. Use extinguishing media appropriate for surrounding fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases (hydrogen fluoride, and carbonyl fluoride). Hexafluoroethane does not burn; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Minimum Personal Protective Equipment should be **Level B: Self-Contained Breathing Apparatus**. Locate and seal the source of the leaking gas. Colorimetric tubes are available to detect the presence of Hexafluoroethane. Readings should be below levels listed in Section 2 (Composition and Information on Ingredients) and the area should be monitored for oxygen levels. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus.

If leaking incidentally from the cylinder or its valve, contact your supplier.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of this product could occur without any significant warning symptoms, due to oxygen deficiency.

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits.

Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Use only storage containers and equipment (pipes, valves, fittings to relieve pressure, etc.) designed for the temperatures and pressures for the use and storage of Liquid Hexafluoroethane.

Use a check valve or other protective device in the discharge line to prevent hazardous backflow. Never tamper with pressure relief valves and cylinders.

Keep the smallest amount necessary on-site at any one time. Full and empty cylinders should be segregated. Use a first-in, first-out inventory systems to prevent full containers from being stored for long periods of time.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used.

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc, on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for gas storage. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS:

<u>THREADED:</u>	0-3000 psig - CGA 660 0 - 500 psig - CGA 165 (limited standard) 0 - 500 psig - CGA 182 (limited standard) 0-3000 psig - CGA 320 (limited standard)
<u>PIN-INDEXED YOKE.</u>	Not Applicable.
<u>ULTRA HIGH INTEGRITY.</u>	716

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of oxygen.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of this product. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Splash goggles or safety glasses. Face-shields should be worn if contact with the liquefied gas is anticipated.

**HAND PROTECTION:** Wear leather gloves or glove protection appropriate to the specific operation for which this product is used.

**BODY PROTECTION:** Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product. Safety shoes are recommended when handling cylinders.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 23.9°C (75°F) air = 1:** 0.358 lb/ft<sup>3</sup> (5.734 kg/m<sup>3</sup>)

**BOILING POINT @ 1 atm:** -78.2°C (-108.8°F)

**FREEZING/MELTING POINT @ 1 atm:** -100.6°C (-149.1°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 5.545

**SOLUBILITY IN WATER:** Negligible.

**EVAPORATION RATE (nBuAc = 1):** Not applicable

**ODOR THRESHOLD:** Not applicable.

**VAPOR PRESSURE @ 21.1°C (70°F):** 445

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable

**APPEARANCE AND COLOR:** Colorless, odorless, non-flammable gas

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

pH. Not applicable.

**MOLECULAR WEIGHT:** 138.012

**EXPANSION RATIO:** Not applicable.

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 2.8

## 10. STABILITY and REACTIVITY

**STABILITY:** Normally stable

**DECOMPOSITION PRODUCTS:** If product is exposed to fire, it may decompose yielding toxic products (i.e. hydrogen fluoride, carbonyl fluoride).

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** The following materials are not compatible with this product: polystyrene, alkaline and alkaline earth metals (such as sodium, potassium, lithium, barium, and magnesium, powdered aluminum). Metals such as silver, brass, bronze and copper may enhance the decomposition of this product at elevated temperatures. This product may also decompose in the presence of moisture and alloys which contain more than 2% magnesium.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Avoid contact with incompatible materials and avoid exposing cylinders to extremely high temperatures, which could cause the cylinders to rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** No specific toxicology data are available for this product. Hexafluoroethane is an asphyxiant. Oxygen levels should be maintained above 19.5%.

**SUSPECTED CANCER AGENT:** Hexafluoroethane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Hexafluoroethane is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION OF PRODUCT:** Hexafluoroethane is not known to cause sensitization in humans.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects Hexafluoroethane on the human reproductive system

Mutagenicity: No mutagenicity effects on humans have been described for Hexafluoroethane.

Embryotoxicity: No embryotoxic effects have been described for Hexafluoroethane

Teratogenicity: No teratogenicity effects on humans have been described for Hexafluoroethane.

Reproductive Toxicity: No reproductive toxicity effects on humans have been described for Hexafluoroethane.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing respiratory conditions and cardio-vascular conditions may be aggravated by over-exposure to Hexafluoroethane.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and reduce over-exposure. Note: Epinephrine increases the toxicity of Hexafluoroethane on the heart.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Hexafluoroethane.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** The gas will be dissipated rapidly in well-ventilated areas

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to adverse effects on the cardiovascular system and to exposure to oxygen deficient environments. The symptoms experienced by over-exposed animals would be similar to those described for exposed humans. No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME	Hexafluoroethane
HAZARD CLASS NUMBER and DESCRIPTION	2.2 (Non-Flammable Gas)
UN IDENTIFICATION NUMBER	UN 2193
PACKING GROUP	Not applicable.
DOT LABEL(S) REQUIRED:	Non-Flammable Gas
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996)	126

## 14. TRANSPORTATION INFORMATION (Continued)

**MARINE POLLUTANT:** Hexafluoroethane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Hexafluoroethane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable

**TSCA INVENTORY STATUS:** Hexafluoroethane is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITIES (RQ):** Not applicable

**CALIFORNIA PROPOSITION 65:** Hexafluoroethane is not on the California Proposition 65 lists

**STATE REGULATORY INFORMATION.** Hexafluoroethane is covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: No

California - Permissible Exposure Limits for Chemical Contaminants: No

Florida - Substance List: No.

Illinois - Toxic Substance List: No.

Kansas - Section 302/313 List: No

Massachusetts - Substance List: No.

Minnesota - List of Hazardous Substances: No

Missouri - Employer Information/Toxic Substance List: No

New Jersey - Right to Know Hazardous Substance List: Hexafluoroethane.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: No.

Rhode Island - Hazardous Substance List: No.

Texas - Hazardous Substance List: No.

West Virginia - Hazardous Substance List: No

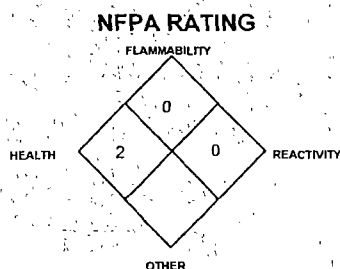
Wisconsin - Toxic and Hazardous Substances: No

### OTHER U.S. FEDERAL REGULATIONS

- Hexafluoroethane is not listed in Appendix A as a highly hazardous chemical, per 29 CFR 1910.119. Process Safety Management of Highly Hazardous Chemicals
- Hexafluoroethane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Hexafluoroethane is not listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Accidental Release Prevention.

**OTHER CANADIAN REGULATIONS:** Hexafluoroethane is categorized as a Controlled Product, Hazard Class A, as per the Controlled Product Regulations.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	0
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923. Telephone: (703) 788-2700

- P-1 "Safe Handling of Compressed Gases in Containers"
- P-14 "Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmospheres"
- SB-2 "Oxygen Deficient Atmospheres"
- AV-1 "Safe Handling and Storage of Compressed Gases"
- "Handbook of Compressed Gases"

PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**AIR LIQUIDE**

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

## 1. PRODUCT IDENTIFICATION

**CHEMICAL NAME; CLASS: TRIFLUOROMETHANE**

**SYNONYMS:** Fluoroform; Carbon Trifluoride; Arcton; Fluoryl; Freon 23; Freon F-23;  
Genetron-23; Halocarbon 23; Methyl Trifluoride; R-23;

**CHEMICAL FAMILY NAME:** Halogenated Aliphatic Hydrocarbon

**FORMULA:** CHF<sub>3</sub>

**PRODUCT USE:**

Document Number: 20167

Refrigerant gas; intermediate in organic  
chemical synthesis.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**

**AIR LIQUIDE**

9101-LBJ-FREEWAY, SUITE-800  
DALLAS, TX-75243

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-972-301-5200

Fax on Demand: 1-800/231-1366

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					OTHER
			ACGIH		OSHA			
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Trifluoromethane	75-46-7	100	There are no specific exposure limits for Trifluoromethane. Trifluoromethane is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used.

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-1993 format

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW.** Trifluoromethane is a colorless, non-flammable, odorless, liquefied gas. Trifluoromethane can affect the central nervous system after inhalation of high concentrations. Symptoms of such over-exposure can include drowsiness, dizziness, fatigue, and weakness. At high concentrations, the gas can act as an asphyxiant, by displacing oxygen. Therefore, exposure to high concentrations of this gas can be fatal. Frostbite can be caused by contact with rapidly expanding gases or the liquefied gas. This gas is not flammable and not reactive in normal emergency response situations. However, if involved in a fire, this product can decompose to produce toxic gases (i.e. hydrogen fluoride, carbon monoxide and carbon dioxide).

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant route of over-exposure for this gas is by inhalation.

Exposures to high concentrations of this gas can act as a narcotic and may cause central nervous system depression and irritation of the nose, throat and upper respiratory system. Effects of such over-exposure can include light-headedness, giddiness, shortness of breath, and narcosis. Gross overexposure (>20%) can cause temporary alteration of the heart's electrical activity, with irregular pulse, palpitations or inadequate circulation.

High concentrations of this gas can also cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows.

#### CONCENTRATION

12-16% Oxygen

10-14% Oxygen

6-10% Oxygen

Below 6%.

#### SYMPTOM OF EXPOSURE

Breathing and pulse rate increased, muscular coordination slightly disturbed. Emotional upset, abnormal fatigue, disturbed respiration.

Nausea and vomiting, collapse or loss of consciousness.

Convulsive movements, possible respiratory collapse, and death.

**OTHER POTENTIAL HEALTH EFFECTS:** Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact can quickly subside.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Over-exposure to may cause the following health effects:

**ACUTE:** The most significant hazard associated with this product is inhalation of high concentrations of Trifluoromethane. Such over-exposure can cause central nervous system depression. Symptoms of central nervous system depression include light-headedness, giddiness, shortness of breath, and narcosis. Inhalation of high concentrations can cause irregularities of the heart, possibly leading to death. Trifluoromethane can also cause oxygen deficiency. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no confirmed adverse health effects on humans associated with chronic exposure to this compressed gas.

**TARGET ORGANS:** Respiratory system, central nervous systems, and cardio-vascular system.

#### HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH

(BLUE)

0

FLAMMABILITY

(RED)

0

REACTIVITY

(YELLOW)

0

PROTECTIVE EQUIPMENT

B

EYES RESPIRATORY HANDS BODY

See Section 8

For routine industrial applications

### 4 FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus should be worn.



## 4 FIRST-AID MEASURES (Continued)

Remove victim(s) to fresh air, as quickly as possible. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Only trained personnel should administer supplemental oxygen.

**SKIN EXPOSURE:** Contact with the liquid or rapidly expanding gases can cause frostbite. In the event of frostbite, medical attention must be sought. Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS (in air by volume, %)**

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

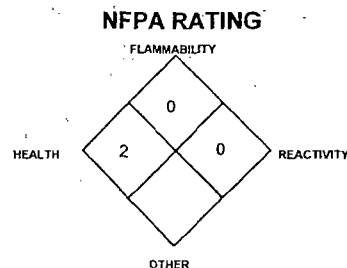
**FIRE EXTINGUISHING MATERIALS:** Non-flammable, inert gas. Use extinguishing media appropriate for surrounding fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases (i.e. carbon dioxide, carbon monoxide, hydrogen fluoride). Because of the decomposition product of hydrogen fluoride, when involved in a fire, the fumes can be irritating and pose a hazard to firefighters. Trifluoromethane does not burn; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment.



## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Minimum Personal Protective Equipment should be **Level B: Self-Contained Breathing Apparatus**. Locate and seal the source of the leaking gas. Colorimetric tubes are available to detect the presence of Trifluoromethane. Readings should be below levels listed in Section 2 (Composition and Information on Ingredients) and the area should be monitored for oxygen levels. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus.

If leaking incidentally from the cylinder or its valve, contact your supplier.

## 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms, due to oxygen deficiency.

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright and be firmly secured to prevent falling or being knocked-over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight.

**WORK PRACTICES AND HYGIENE PRACTICES (continued):** Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits.

## 7. HANDLING and USE (Continued)

Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Use only storage containers and equipment (pipes, valves, fittings to relieve pressure, etc.) designed for the temperatures and pressures for the use and storage of Liquid Trifluoromethane.

Use a check valve or other protective device in the discharge line to prevent hazardous backflow. Never tamper with pressure relief valves and cylinders.

Keep the smallest amount necessary on-site at any one time. Full and empty cylinders should be segregated. Use a first-in, first-out inventory systems to prevent full containers from being stored for long periods of time.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used.

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc, on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for gas storage. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS.

<u>THREADED:</u>	0-3000 PSI: CGA 660 0-500 PSI: CGA 165 (Limited Standard) 0-500 PSI: CGA 182 (Limited Standard) 0-3000 PSI: CGA 320 (Limited Standard)
<u>PIN-INDEXED YOKE</u>	Not applicable.
<u>ULTRA HIGH INTEGRITY:</u>	Not applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of oxygen.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of this product. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Splash goggles or safety glasses. Face-shields should be worn if contact with the liquefied gas is anticipated.

**HAND PROTECTION:** Wear leather gloves or glove protection appropriate to the specific operation for which this product is used.

**BODY PROTECTION:** Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product. Safety shoes are recommended when handling cylinders.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 25°C (77°F) and @ 101.325 kPa :** 2.86 kg/m<sup>3</sup>

**BOILING POINT @ 101.325 kPa:** 8.9°C (48.1°F)

**FREEZING/MELTING POINT:** -82.0°C (-115.6°F)

**SPECIFIC GRAVITY:** Not available

**SOLUBILITY IN WATER % by weight @ 25°C (77°F):** 0.95%

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**ODOR THRESHOLD:** Not applicable.

**VAPOR PRESSURE @ 25°C (77°F):** 686 psig

**COEFFICIENT WATER/OIL DISTRIBUTION @ 25°C (77°F):** (Bunsen Coefficient) = 0.319

**APPEARANCE AND COLOR** Colorless, odorless, non-flammable gas. At high concentrations, this gas may have a sweetish odor

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

**pH** Not applicable

**MOLECULAR WEIGHT:** 70.014

**EXPANSION RATIO** Not applicable

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 5.5

## 10. STABILITY and REACTIVITY

**STABILITY.** Normally stable. Trifluoromethane decomposes above 1150°C (2102°F). Trifluoromethane decomposes very slowly with water

**DECOMPOSITION PRODUCTS:** If product is exposed to fire, it may decompose yielding toxic products (i.e. hydrogen fluoride, carbon monoxide and carbon dioxide). The thermal decomposition products of Trifluoromethane are highly corrosive.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE.** Trifluoromethane is incompatible with strong oxidizing agents such as oxygen. Trifluoromethane can also react with chemically active metals, such as, calcium, powdered aluminum, zinc, magnesium, beryllium, titanium, samarium, lithium and barium.

**HAZARDOUS POLYMERIZATION** Will not occur.

**CONDITIONS TO AVOID:** Avoid contact with incompatible materials, temperatures above 1150°C (2102°F), moisture and avoid exposing cylinders to extremely high temperatures, which could cause the cylinders to rupture or burst

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following information is available for Trifluoromethane.

Sex Chromosome Loss and Nondisjunction-Drosophila melanogaster-Inhalation 98 pph/10 minutes

LC<sub>50</sub> (inhalation, rat) > 663,000 ppm, 4 hours

**SUSPECTED CANCER AGENT.** Trifluoromethane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies

**IRRITANCY OF PRODUCT** Trifluoromethane is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue

**SENSITIZATION OF PRODUCT:** Trifluoromethane is not known to cause respiratory system or skin sensitization in humans

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects Trifluoromethane has on the human reproductive system.

Mutagenicity: No human mutagenicity effects have been described for this Trifluoromethane. Mutation data is available for this gas; obtained during clinical studies involving fruit flies exposed to relatively high doses.

Embryotoxicity: No embryotoxic effects have been described for this Trifluoromethane.

Teratogenicity: No teratogenicity effects have been described for this Trifluoromethane

Reproductive Toxicity: No reproductive toxicity effects have been described for Trifluoromethane.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process*

## 11. TOXICOLOGICAL INFORMATION (Continued)

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE** Pre-existing respiratory conditions, central nervous and cardio-vascular conditions may be aggravated by over-exposure to this product.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, treat symptoms and reduce over-exposure. Note: Epinephrine increases the toxicity of Trifluoromethane on the heart

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Trifluoromethane.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY** The gas will be dissipated rapidly in well-ventilated areas. Trifluoromethane is relatively stable in the environment.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS.** Any adverse effect on animals would be related to adverse effects on the cardiovascular system and to exposure to oxygen deficient environments. The symptoms experienced by over-exposed animals would be similar to those described for exposed humans. No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally

## 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

**PROPER SHIPPING NAME:** Trifluoromethane  
**HAZARD CLASS NUMBER and DESCRIPTION:** 2.2 (Non-Flammable Gas)  
**UN IDENTIFICATION NUMBER:** UN 1984  
**PACKING GROUP:** Not applicable.  
**DOT LABEL(S) REQUIRED:** Non-Flammable Gas  
**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 126

**MARINE POLLUTANT** Trifluoromethane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b))

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Trifluoromethane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable

**TSCA INVENTORY STATUS:** Trifluoromethane is listed on the TSCA Inventory

**CERCLA REPORTABLE QUANTITIES (RQ):** Not applicable.

**CALIFORNIA PROPOSITION 65:** Trifluoromethane is not on the California Proposition 65 lists

## 15. REGULATORY INFORMATION (Continued)

**STATE REGULATORY INFORMATION:** Trifluoromethane is covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: No.

California - Permissible Exposure Limits for Chemical Contaminants: No

Florida - Substance List: No

Illinois - Toxic Substance List: No

Kansas - Section 302/313 List: No

Massachusetts - Substance List: No

Minnesota - List of Hazardous Substances: No.

Missouri - Employer Information/Toxic Substance List: Trifluoromethane

New Jersey - Right to Know Hazardous Substance List: No.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: No

Rhode Island - Hazardous Substance List: No

Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No

Wisconsin - Toxic and Hazardous: No

### OTHER U.S. FEDERAL REGULATIONS:

- Trifluoromethane is not subject to the requirements of CFR 29 1910.1000. Trifluoromethane is not listed on Table Z.1.
- Trifluoromethane is not subject to the reporting requirements of Section 112(r) of the Clean Air Act.
- Trifluoromethane is not listed in Appendix A as a highly hazardous chemical, per 29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals.
- Trifluoromethane is not a Class I or Class II ozone depleting chemical (40 CFR part 82)
- Trifluoromethane is not listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Accidental Release Prevention

**OTHER CANADIAN REGULATIONS:** Trifluoromethane is categorized as a Controlled Product, Hazard Class A, as per the Controlled Product Regulations.

## 16. OTHER INFORMATION

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923. Telephone: (703) 788-2700.

P-1	"Safe Handling of Compressed Gases in Containers"
P-14	"Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmospheres"
SB-2	"Oxygen Deficient Atmospheres"
AV-1	"Safe Handling and Storage of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



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**AIR LIQUIDE**

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

## 1. PRODUCT IDENTIFICATION

**CHEMICAL NAME; CLASS:****ETHYLENE****SYNONYMS:** Acetene; Liquid Olefiant Gas Ethene, Elayl, Etherin, Bicarbured Hydrogen**CHEMICAL FAMILY NAME:** Alkenes; Aliphatic Hydrocarbon**FORMULA:** C<sub>2</sub>H<sub>4</sub>**PRODUCT USE:**

Document Number: 20065

For fuel and synthetic chemical use; welding,  
medical and agricultural uses.**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:****AIR LIQUIDE**2700 Post Oak Drive  
Houston, TX 77056-8229**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896

Fax on Demand: 1-800/231-1366

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Ethylene	74-85-1	> 99.5%	There are no specific exposure limits for Ethylene. Ethylene is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%					
Maximum Impurities		< 0.5%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used.

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-1993 format.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW.** Ethylene is a colorless, flammable gas with a slightly sweet odor. The gas poses a serious fire hazards when accidentally released. This gas acts as a simple asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. The gas may spread long distances. Distant ignition and flashback are possible. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to burst or rupture without activating the cylinder's relief devices. This product can undergo a violent chemical reaction at elevated temperatures. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE** The most significant route of over-exposure for this product is by inhalation.

**INHALATION:** Exposure to very high concentrations of this product (20% or greater) can cause anesthetic effects. High concentrations of this gas can also cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of ethylene in air would be exceeded; possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows.

**CONCENTRATION**

12-16% Oxygen

10-14% Oxygen:

6-10% Oxygen:

Below 6%.

**SYMPTOM OF EXPOSURE**

Breathing and pulse rate increased, muscular coordination slightly disturbed. Emotional upset, abnormal fatigue, disturbed respiration.

Nausea and vomiting, collapse or loss of consciousness.

Convulsive movements, possible respiratory collapse, and death

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH (BLUE)	1		
FLAMMABILITY (RED)	4		
REACTIVITY (YELLOW)	2		
PROTECTIVE EQUIPMENT	B		
EYES	RESPIRATORY	HANDS	BODY
See Section 8			
For routine industrial applications			

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Over-exposure to Ethylene may cause the following health effects.

**ACUTE:** The most significant hazard associated with this product is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no known adverse health effects associated with chronic exposure to this compressed gas.

**TARGET ORGANS:** Respiratory system, CNS system

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant equipment should be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen. Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable; flammable gas.

**AUTOIGNITION TEMPERATURE:** 490 °C (914 °F)

**FLAMMABLE LIMITS** (in air by volume, %):

Lower (LEL) 2.7%

Upper (UEL) 36.0%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Ethylene fires by shutting-off the source of the gas. Use water spray or a foam agent to cool fire-exposed containers, structures, and equipment.

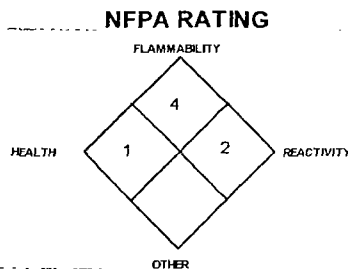
**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide. An extreme explosion hazard exists in areas in which the gas has been released, but the material has not yet ignited.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles, if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Static discharge may cause this product to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES.** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. If water is not available for cooling or protection of vessel exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.



## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. Adequate fire protection must be provided.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus**. Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (2.7%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.



## 7. HANDLING and USE (Continued)

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS:

<u>THREADED:</u>	0-3000 PSIG CGA 350
<u>PIN-INDEXED YOKE</u>	CGA 900
<u>ULTRA HIGH INTEGRITY:</u>	Not applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS.** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Ethylene does not reach its lower flammability limit of 2.7%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of this product. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION** Wear leather gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

**BODY PROTECTION.** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 0°C (32°F) and 1 atm:** 0.0787 lb/ft<sup>3</sup> (1.261 kg/m<sup>3</sup>)

**BOILING POINT @ 1 atm:** -155 °F, -103.7°C

**FREEZING/MELTING POINT @ 1 atm:** -272.9°F, -169.4 °C

**SPECIFIC GRAVITY @ 0°C (32°F) and 1 atm (air = 1):** 0.978

**pH** Not applicable.

**SOLUBILITY IN WATER vol/vol @ 0°C (32°F):** 0.26

**MOLECULAR WEIGHT:** 28.05

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**EXPANSION RATIO** Not applicable

**ODOR THRESHOLD:** 700 mg/m<sup>3</sup> (detection)

**SPECIFIC VOLUME (ft<sup>3</sup>/lb)** 12.7

**VAPOR PRESSURE @ 21.1°C (70°F) psig** Not applicable

**COEFFICIENT WATER/OIL DISTRIBUTION.** Not applicable

**APPEARANCE AND COLOR** Colorless gas with a sweet odor.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The sweet odor can be a good warning indication that a release of this product is occurring. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable at standard temperatures and pressures. At high temperatures and pressures, this product can polymerize.

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will decompose to produce carbon monoxide and carbon dioxide

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Ethylene may react violently with the following materials. Strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride); aluminum chloride, organic peroxides, nitrogen dioxide, and ozone. Can react violently with carbon tetrachloride, chlorine, mercury oxide, silver oxide, and copper at high temperatures.

**HAZARDOUS POLYMERIZATION:** May occur at elevated temperatures

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** Dogs exposed to 1.4% ethylene were anesthetized in 2-8.2 minutes. Additional information is as follows

LC50 (inhalation, mouse) = 96 pph

LCLo (inhalation, mammal) = 950000 ppm for 5 minutes

**SUSPECTED CANCER AGENT** Ethylene is not found on the following lists. FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies. Ethylene is listed as an IARC Group 3 Compound (Not Classifiable in terms of Human Carcinogenicity)

**IRRITANCY OF PRODUCT.** Ethylene is not irritating, however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION TO THE PRODUCT:** Ethylene is not known to cause sensitization in humans

**REPRODUCTIVE TOXICITY INFORMATION.** Listed below is information concerning the effects of Ethylene on the human reproductive system

Mutagenicity: No mutagenicity effects have been described for Ethylene

Embryotoxicity: No embryotoxic effects have been described for Ethylene.

Teratogenicity: No teratogenicity effects have been described for Ethylene.

Reproductive Toxicity: No reproductive toxicity effects have been described for Ethylene.

## 11. TOXICOLOGICAL INFORMATION (Continued)

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE** Acute or chronic respiratory conditions may be aggravated by over-exposure to this product.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary, treat symptoms; reduce or eliminate exposure.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Ethylene.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY** This gas will be dissipated rapidly in well-ventilated areas. Additional environmental data for Ethylene are available as follows:

Water Solubility = 1 vol/4 vol at 0°C and 1 vol/9 vol at 25°C. Ethylene in excess of 0.5 ppm in air may injure crops over a 24-hour exposure period. Ethylene does not bioaccumulate. Ethylene is not expected to be harmful to aquatic life.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to oxygen deficient environments, as well as respiratory system damage. An excess of 0.5 ppm of Ethylene, in the air, may injure crops over a 24-hour exposure period. Refer to Section 11 (Toxicological Information) for data on the specific effects of this Ethylene on test animals.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** The following data are currently available for Ethylene in aquatic environments.

Log  $K_{ow}$  = 1.13, ethylene does not bioconcentrate in aquatic organisms.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

**PROPER SHIPPING NAME:** Ethylene, compressed

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.1 (Flammable Gas)

**UN IDENTIFICATION NUMBER:** UN 1962

**PACKING GROUP:** Not applicable.

**DOT LABEL(S) REQUIRED:** Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 116P

**MARINE POLLUTANT:** Ethylene is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles presents serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS** Ethylene is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

COMPOUND	SARA 302	SARA 304	SARA 313
Ethylene	NO	NO	YES

## 15. REGULATORY INFORMATION (Continued)

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable

**TSCA INVENTORY STATUS:** Ethylene is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

**OTHER U.S. FEDERAL REGULATIONS:**

- Ethylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.  
Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Ethylene is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Ethylene does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Ethylene is listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance. The threshold quantity for Ethylene under this regulation is 10,000 lbs

**OTHER CANADIAN REGULATIONS:** Ethylene is categorized as a Controlled Product, Hazard Classes A, and B1, as per the Controlled Product Regulations

**STATE REGULATORY INFORMATION:** Ethylene is covered under specific State regulations, as denoted below.

Alaska - Designated Toxic and Hazardous Substances: Ethylene

California - Permissible Exposure Limits for Chemical Contaminants: Ethylene.

Florida - Substance List: Ethylene

Illinois - Toxic Substance List: Ethylene

Kansas - Section 302/313 List: Ethylene

Massachusetts - Substance List: Ethylene.

Minnesota - List of Hazardous Substances: Ethylene

Missouri - Employer Information/Toxic Substance List: Ethylene

New Jersey - Right to Know Hazardous Substance List: Ethylene

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Ethylene

Rhode Island - Hazardous Substance List: Ethylene

Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No.

Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65:** Ethylene is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

P-1 "Safe Handling of Compressed Gases in Containers"  
SB-8 "Use of Oxy-fuel Gas Welding and Cutting Apparatus"  
AV-1 "Safe Handling and Storage of Compressed Gases"  
"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302  
Fax on Demand: 1-800/231-1366



**AIR LIQUIDE**

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**AIR LIQUIDE**

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

## 1. PRODUCT IDENTIFICATION

**CHEMICAL NAME; CLASS: PROPYLENE**

**SYNONYMS:** Methylethene; Methylethylene; Propene

**CHEMICAL FAMILY:** Unsaturated aliphatic hydrocarbon / alkene

**FORMULA:** C<sub>3</sub>H<sub>6</sub>

**PRODUCT USE:**

Document Number: 20146

For fuel and synthetic chemical use; food additive, agricultural uses, aerosol propellant, refrigerant.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**

**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand: 1-800/231-1366

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					OTHER	
			ACGIH		OSHA				
			TLV ppm	STEL ppm	PEL ppm	STEL Ppm	IDLH ppm		
Propylene	115-07-1	> 99 %	A4 (Not classifiable as Human Carcinogen)	There are no specific exposure limits for Propylene. Propylene is a simple asphyxiant (SA) Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 1.0%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.						

NE = Not Established

C = Ceiling Limit

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-1993 format.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW.** This product is a colorless, liquefied, flammable gas with a mild odor. Both the liquid and gas pose a serious fire hazard when accidentally released. The gas is heavier than air, and may spread long distances. Distant ignition and flashback are possible. Rapid evaporation of liquid from cylinder may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to burst or rupture without activating the cylinder's relief devices. Propylene is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Propylene may undergo polymerization at elevated temperatures and pressures, under certain circumstances. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant route of over-exposure for this product is by inhalation.

**INHALATION:** High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Propylene in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing an oxygen deficient atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows.

**CONCENTRATION**

12-16% Oxygen

10-14% Oxygen:

6-10% Oxygen:

Below 6%:

**SYMPTOM OF EXPOSURE**

Breathing and pulse rate increased, muscular coordination slightly disturbed. Emotional upset, abnormal fatigue, disturbed respiration.

Nausea and vomiting; collapse or loss of consciousness.

Convulsive movements, possible respiratory collapse, and death.

**OTHER POTENTIAL HEALTH EFFECTS:** Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after such contact can quickly subside.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to this gas mixture may cause the following health effects:

**ACUTE:** The most significant hazard associated with this product is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no known adverse health effects associated with chronic exposure to the components of this compressed gas.

**TARGET ORGANS:** Respiratory system

**HAZARDOUS MATERIAL INFORMATION SYSTEM**

**HEALTH**

(BLUE)

1

**FLAMMABILITY**

(RED)

4

**REACTIVITY**

(YELLOW)

1

**PROTECTIVE EQUIPMENT**

B

EYES      RESPIRATORY      HANDS      BODY

See Section 8

For routine industrial applications

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant clothing should be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

## 4. FIRST-AID MEASURES (Continued)

**SKIN EXPOSURE:** Exposure to the liquefied gas can cause frostbite. Remove any clothing that may restrict circulation to any frozen area. Do not rub frozen parts as tissue damage may occur. As soon as practicable, place any affected area in warm water bath which has a temperature that does not exceed 105°F (40°C). NEVER USE HOT WATER. NEVER USE DRY HEAT. If area of frostbite is extensive, and if possible, remove clothing while showering with warm water. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable

**AUTOIGNITION TEMPERATURE:** 455°C (851°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 2.0%  
Upper (UEL): 11.0%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Propylene fires by shutting-off the source of the gas. Use water spray to cool fire-exposed containers, structures, and equipment.

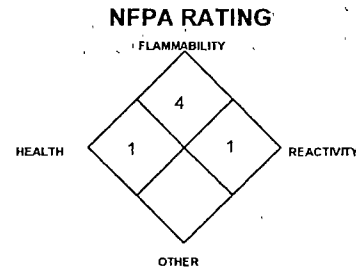
**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide. Propylene may undergo polymerization at elevated temperatures and pressures, under certain circumstances.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Static discharge may cause this product to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.



## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

## 6. ACCIDENTAL RELEASE MEASURES (Continued)

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus**. Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (2.0%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES.** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES:** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS.** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used.

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve.

Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".



## 7. HANDLING and USE (Continued)

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS:

THREADED: 0-500 PSIG - CGA 510

PIN-INDEXED YOKE: Not Applicable.

ULTRA HIGH INTEGRITY: Not Applicable

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS.** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Propylene does not reach its lower flammability limit of 2.0%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of this product. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION** Safety glasses.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used. Use low-temperature protective gloves when working with containers of Liquid Propylene.

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.110 447 lb/ft<sup>3</sup> (1.7692 kg/m<sup>3</sup>)

**BOILING POINT:** -47.72°C (-53.90°F)

**FREEZING/MELTING POINT @ 10 psig:** -185°C (-301.4°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 1.4529

**pH:** Not applicable.

**SOLUBILITY IN WATER vol/vol @ 37.8°C (100°F):** 0.009 **MOLECULAR WEIGHT:** 42.081

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**EXPANSION RATIO:** Not applicable

**ODOR THRESHOLD:** 30 mg/m<sup>3</sup>

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 9.1

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** 132.81

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless gas with a mild odor. The liquid is also colorless, and will have a faint odor.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide.

## 10. STABILITY and REACTIVITY (Continued)

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

**HAZARDOUS POLYMERIZATION:** Propylene may undergo polymerization at elevated temperatures and pressures, under certain circumstances.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following information is for Propylene

**Effects on Short-Term Inhalation:** In all species tested, propylene is an anesthetic, being approximately twice as toxic as ethylene. A concentration of 40% produced light anesthesia in rats, with no toxic effects within 6 hours of exposure. Exposure to 55% for 3 to 6 minutes, 65% for 2 to 5 minutes, and 70% for 1 to three minutes caused deep anesthesia with no central nervous system disturbances. In cats, no toxic signs were observed when anesthesia was induced with propylene concentrations of 20-30%. However, at higher concentrations, toxic effects were seen. Some subtle effects were seen from 40-50%, a drop in blood pressure and increased pulse rate at 70%, and an unusual heart beat from 50-80%. Propylene has been found to be a cardiac sensitizer in dogs. After 4 hours of inhalation exposure to 50,000 ppm propylene, rats pretreated with Aroclor 1254 (a hepatic mixed-function, oxidase inducer) showed liver toxicity. No liver toxicity was observed in control rats or rats pretreated with phenobarbital or beta-naphthoflavone. This evidence suggests that Aroclor pre-treatment is a prerequisite for propylene liver toxicity.

**Effects of Long-Term Inhalation:** Chronic exposure to mice to concentrations causing central nervous system depression resulted in moderate to very slight fatty degeneration of the liver.

**SUSPECTED CANCER AGENT.** Propylene is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA; therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**SENSITIZATION TO THE PRODUCT:** Propylene is considered a weak cardiac sensitizer based on experimental data with animals.

**IRRITANCY OF PRODUCT:** This product is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Propylene on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Propylene.

Embryotoxicity: No embryotoxic effects have been described for Propylene.

Teratogenicity: No teratogenicity effects have been described for Propylene.

Reproductive Toxicity: No reproductive toxicity effects have been described for Propylene.

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to Propylene.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Propylene.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary; treat symptoms; reduce or eliminate exposure.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS.** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life.

### 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

### 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

<b>PROPER SHIPPING NAME:</b>	Propylene	<b>ALTERNATE DESCRIPTION:</b>
<b>HAZARD CLASS NUMBER and DESCRIPTION:</b>	2.1 (Flammable Gas)	Petroleum gases, liquefied
<b>UN IDENTIFICATION NUMBER:</b>	UN 1077	2.1 (Flammable Gas)
<b>PACKING GROUP:</b>	Not applicable.	UN 1075
<b>DOT LABEL(S) REQUIRED:</b>	Flammable Gas	Not applicable.
<b>NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):</b>	115	Flammable Gas
<b>MARINE POLLUTANT.</b> Propylene is not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).		

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

### 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS.** Propylene is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

CHEMICAL NAME	SARA 302	SARA 304	SARA 313
Propylene	No	No	Yes

**SARA Threshold Planning Quantity:** Not applicable.

**TSCA INVENTORY STATUS:** Propylene is listed on the TSCA Inventory

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

#### OTHER U.S. FEDERAL REGULATIONS

- Propylene does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Propylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for of this gas is 10,000 pounds.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Propylene is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Propylene is listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Release Prevention as a flammable substance (threshold quantity under this regulation is 10,000 lbs).

**OTHER CANADIAN REGULATIONS:** Propylene is categorized as a Controlled Product, Hazard Classes A, and B1 as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Propylene is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Propylene  
California - Permissible Exposure Limits for Chemical Contaminants: Propylene  
Florida - Substance List: Propylene.  
Illinois - Toxic Substance List: Propylene  
Kansas - Section 302/313 List: Propylene

Massachusetts - Substance List: Propylene  
Minnesota - List of Hazardous Substances: Propylene  
Missouri - Employer Information/Toxic Substance List: Propylene  
New Jersey - Right to Know Hazardous Substance List: Propylene  
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Propylene  
Rhode Island - Hazardous Substance List: Propylene  
Texas - Hazardous Substance List: No.  
West Virginia - Hazardous Substance List: No.  
Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65** Propylene is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

P-1 "Safe Handling of Compressed Gases in Containers"  
P-14 "Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"  
SB-2 "Oxygen Deficient Atmospheres"  
"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302  
Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: PROPANE**

**SYNONYMS:** Dimethylmethane, LP-Gas, Liquefied Petroleum Gas (LPG)

**CHEMICAL FAMILY:** Alkane (hydrocarbon)

**FORMULA:** C<sub>3</sub>H<sub>8</sub>

**PRODUCT USE:**

Document Number: 10076

For fuel and synthetic chemical use; food additive, agricultural uses, aerosol propellant, refrigerant

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand:

1-800/231-1366

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW** Propane is a colorless, liquefied, flammable gas with a natural gas odor, which rapidly turns into a gas at standard atmospheric temperature and pressure. Both the liquid and gas pose a serious fire hazard when accidentally released. The gas is heavier than air, and may spread long distances. Distant ignition and flashback are possible. Rapid evaporation of liquid from cylinder may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of Propane can cause the cylinder to burst or rupture without activating the cylinder's relief devices. Propane is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE** The most significant route of over-exposure for Propane is by inhalation.

**INHALATION** At high concentrations, Propane can act as a narcotic. High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of propane in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing an oxygen deficient atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

<u>CONCENTRATION</u>	<u>SYMPTOM OF EXPOSURE</u>
12-16% Oxygen	Breathing and pulse rate increased, muscular coordination slightly disturbed
10-14% Oxygen.	Emotional upset, abnormal fatigue, disturbed respiration
6-10% Oxygen.	Nausea and vomiting, collapse or loss of consciousness
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to this gas mixture may cause the following health effects:

**ACUTE:** The most significant hazard associated with Propane is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC** There are currently no known adverse health effects associated with chronic exposure to the components of this compressed gas.

**TARGET ORGANS:** Respiratory system.

### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Propane	74-98-6	> 96%	Simple Asphyxiant	NE	1000	NE	2100	NIOSH REL 1000 ppm DFG MAK 1000 ppm
Maximum Impurities		< 4.0%	None of the trace impurities in Propane contribute significantly to the hazards associated with the product. All hazard information pertinent to Propane has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO PROPANE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

**SKIN EXPOSURE:** Remove any clothing that may restrict circulation to any frozen area. Do not rub frozen parts as tissue damage may occur. As soon as practicable, place any affected area in warm water bath which has a temperature that does not exceed 105°F (40°C). NEVER USE HOT WATER. NEVER USE DRY HEAT. If area of frostbite is extensive, and if possible, remove clothing while showering with warm water. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE.** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT, (Closed Cup):** -104°C (-156°F)

**AUTOIGNITION TEMPERATURE:** 450°C (842°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 2.2%

Upper (UEL): 9.5%

**FIRE EXTINGUISHING MATERIALS** Extinguish Propane fires by shutting-off the source of the gas. Use water spray to cool fire-exposed containers, structures, and equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS.** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide. Propane is heavier than air and vapors can travel long distances to an ignition source and flashback.

## 5. FIRE-FIGHTING MEASURES (Continued)

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of Propane can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact. Not sensitive.

Explosion Sensitivity to Static Discharge. Static discharge may cause Propane to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. The best fire-fighting technique may be simply to let the burning gas escape. Stop the leak before extinguishing the fire. If the fire is extinguished before the fire is stopped, and because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (2.2%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of Propane could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES:** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.



## 7. HANDLING AND STORAGE (Continued)

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS.** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY"

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with Propane. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS:

THREADED: For Gas Withdrawal - CGA 510  
For Liquid Withdrawal - CGA 555

PIN-INDEXED YOKE: Not Applicable.

ULTRA HIGH INTEGRITY: Not Applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS.** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Propane does not reach its lower flammability limit of 2.2%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of Propane. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses, faceshield when handling the liquefied product.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of Propane. Otherwise, wear glove protection appropriate to the specific operation for which Propane is used. Use low-temperature protective gloves when working with containers of Liquid Propane.

**BODY PROTECTION** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.115 99 lb/ft<sup>3</sup> (1 868 kg/m<sup>3</sup>)

**BOILING POINT** -42°C (-43.7°F)

**FREEZING/MELTING POINT @ 10 psig:** -187.70°C; -305.9°F

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 1.5223

**pH** Not applicable

**SOLUBILITY IN WATER vol/vol at 37.8°C (100°F):** 0.065 **MOLECULAR WEIGHT:** 44.097

**EVAPORATION RATE (nBuAc = 1):** Not applicable

**EXPANSION RATIO** Not applicable.

**ODOR THRESHOLD.** 1800 mg/m<sup>3</sup>

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 8.7

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** 109.73

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable

**APPEARANCE AND COLOR.** Colorless gas or liquid. Propane has a faint odor at high concentrations

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The natural gas odor may be a warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY.** Stable.

**DECOMPOSITION PRODUCTS:** : When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride)

**HAZARDOUS POLYMERIZATION** Will not occur.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA.** The following information is for pure Propane

**Skin Contact (Rabbit):** Several formulations containing an isobutane-propane mixture have been tested for skin irritation effects. All formulations contained less than 13% propane. All of the formulations containing propane caused only mild irritation.

**Effects on Short-Term Inhalation:** Guinea-pigs breathing 5% propane by volume developed tremors after 5 minutes. Nausea, retching, and stupefaction were observed when animals were exposed for 30-120 minutes. All the animals survived a two-hour exposure and had no significant tissue damage. A gas concentration of 89% did not cause anesthesia, but depressed the blood pressure of cats. Inhalation of 10 percent propane by mice and 15% by dogs caused weak cardiac sensitization. Presumably, all of these effects are reversible when exposure ceases. In primates, 10% propane caused some change in heart function. At 20% there was aggravation of these symptoms and respiratory depression.

**Effects of Long-Term Inhalation:** No toxicity or abnormalities were observed when monkeys were exposed to approximately 750 ppm for 90 days. Similar results were obtained when monkeys were exposed to an aerosol spray containing 65% propane and isobutane.

**SUSPECTED CANCER AGENT** Propane is not found on the following lists. FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Propane is not irritating, however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION TO THE PRODUCT:** Propane is not known to cause sensitization in humans; however, some animals studies indicate that exposure to Propane can cause weak cardiac sensitization.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Propane on the human reproductive system

Mutagenicity: No mutagenicity effects have been described for Propane.

Embryotoxicity: No embryotoxic effects have been described for Propane.

Teratogenicity: No teratogenicity effects have been described for this gas Propane.

Reproductive Toxicity: No reproductive toxicity effects have been described for Propane.

## 11. TOXICOLOGICAL INFORMATION (Continued)

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to the components of Propane.

**BIOLOGICAL EXPOSURE INDICES (BEIs).** Currently, Biological Exposure Indices (BEIs) are not applicable for Propane.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary, treat symptoms, reduce or eliminate exposure

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY.** This gas will be dissipated rapidly in well-ventilated areas. Propane is utilized and rapidly biodegraded by soil bacteria. Additional environmental data for Propane are available as follows:

**PROPANE:** Log  $K_{ow}$  = 2.36 Water Solubility = 2,624 ppm at 25°C Log BCF = calculated, 1.56 and 1.78, respectively The bioconcentration in aquatic organisms is not expected to be important.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS.** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE.** No evidence is currently available on Propane's effects on aquatic life

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

<b>PROPER SHIPPING NAME:</b>	Propane	<b>Alternate Description:</b> Petroleum gases, liquefied
<b>HAZARD CLASS NUMBER and DESCRIPTION:</b>	2.1 (Flammable Gas)	2.1 (Flammable Gas)
<b>UN IDENTIFICATION NUMBER:</b>	UN 1978	UN 1075
<b>PACKING GROUP:</b>	Not applicable.	Not applicable.
<b>DOT LABEL(S) REQUIRED:</b>	Flammable Gas	Flammable Gas
<b>NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115</b>		

**MARINE POLLUTANT.** Propane is not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b))

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Propane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act. This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**TSCA INVENTORY STATUS:** Propane is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable

### OTHER U.S. FEDERAL REGULATIONS.

- Generally recognized as safe, (GRAS) when used as a propellant, aerating agent and gas, and for a pharmaceutical topical.
- Propane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Propane is subject to the requirements of CFR 29 1910.1000. Propane is listed on Table Z.1
- Propane is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Depending on specific operations involving the use of Propane, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Propane is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Propane is listed as Regulated Substances in quantities of 10,000 lbs (4,553 kg) or greater, per 40 CFR, Part 68, of the Risk Management for Chemical Accidental Releases.

**OTHER CANADIAN REGULATIONS:** Propane is categorized as a Controlled Product, Hazard Classes A, and B1 as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Propane is covered under specific State regulations, as denoted below.

Alaska - Designated Toxic and Hazardous Substances: Propane

California - Permissible Exposure Limits for Chemical Contaminants: Propane

Florida - Substance List: No

Illinois - Toxic Substance List: Propane

Kansas - Section 302/313 List: No

Massachusetts - Substance List: Propane.

Minnesota - List of Hazardous Substances: Propane

Missouri - Employer Information/Toxic Substance List: Propane

New Jersey - Right to Know Hazardous Substance List: Propane

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.

Pennsylvania - Hazardous Substance List: Propane

Rhode Island - Hazardous Substance List: Propane

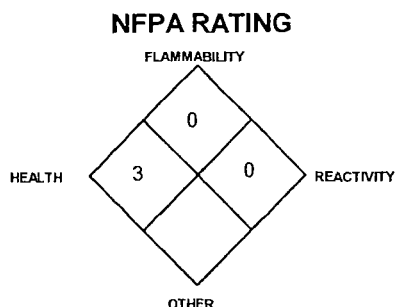
Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No

Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65:** Propane is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL IDENTIFICATION SYSTEM		
HEALTH HAZARD	(BLUE)	3
FLAMMABILITY HAZARD	(RED)	0
PHYSICAL HAZARD	(YELLOW)	0
PROTECTIVE EQUIPMENT		
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For Routine Industrial Use and Handling Applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

- P-1 "Safe Handling of Compressed Gases in Containers"
- P-14 "Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"
- SB-8 "Use of Oxy-fuel Gas Welding and Cutting Apparatus"
- SB-2 "Oxygen Deficient Atmospheres"
- "Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
 9163 Chesapeake Drive, San Diego, CA 92123-1002  
 619/565-0302  
 Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to Propane. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If Propane is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**AIR LIQUIDE**

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

## 1. PRODUCT IDENTIFICATION

**CHEMICAL NAME; CLASS: METHANE**

**SYNONYMS:** Methyl Hydride, Marsh Gas

**CHEMICAL FAMILY:** Alkane (hydrocarbon)

**FORMULA:** CH<sub>4</sub>

**PRODUCT USE:**

Document Number: 10068

For fuel and synthetic chemical use

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**

**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand: 1-800/231-1366

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole-%	EXPOSURE LIMITS IN AIR					OTHER
			ACGIH		OSHA			
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Methane	74-82-8	> 98%	There are no specific exposure limits for Methane. Methane is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 2.0%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

NE = Not Established

C = Ceiling Limit

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-1993 format.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW.** This product is a colorless, flammable gas. The gas poses a serious fire hazard when accidentally released. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to burst or rupture without activating the cylinder's relief devices. The gas is lighter than air, and may spread long distances. Distant ignition and flashback are possible. Methane is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant route of over-exposure for this product is by inhalation.

**INHALATION.** High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Methane in air would be exceeded; possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing an oxygen deficient atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

<u>CONCENTRATION</u>	<u>SYMPTOM OF EXPOSURE</u>
12-16% Oxygen	Breathing and pulse rate increased, muscular coordination slightly disturbed
10-14% Oxygen	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen	Nausea and vomiting, collapse or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death

**HEALTH EFFECTS OR RISKS FROM EXPOSURE:** An **Explanation in Lay Terms.** Over-exposure to this gas mixture may cause the following health effects

**ACUTE** The most significant hazard associated with this product is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC** There are currently no known adverse health effects associated with chronic exposure to the components of this compressed gas.

**TARGET ORGANS** Respiratory system.

HAZARDOUS MATERIAL INFORMATION SYSTEM			
HEALTH	(BLUE)	1	
FLAMMABILITY	(RED)	4	
REACTIVITY	(YELLOW)	0	
PROTECTIVE EQUIPMENT		B	
EYES	RESPIRATORY	HANDS	BODY
See Section 8			
For routine industrial applications			

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant clothing must be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** -306°F (-187.7°C)

**AUTOIGNITION TEMPERATURE:** 650°C (1202°F)

**FLAMMABLE LIMITS** (in air by volume, %):

Lower (LEL). 5.0%

Upper (UEL). 15.0%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Methane fires by shutting-off the source of the gas. Use water spray to cool fire-exposed containers, structures, and equipment.

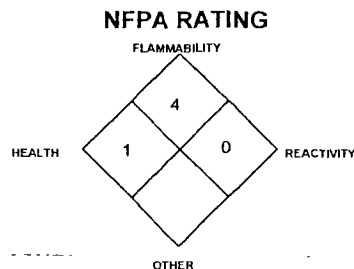
**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact Not sensitive

Explosion Sensitivity to Static Discharge Static discharge may cause this product to ignite explosively, if released

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.



## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus**. Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate. Combustible gas concentration must be below 10% of the LEL (5%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES** Specific requirements are listed in NFPA 58. Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn.



## 7. HANDLING and USE (Continued)

Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity)

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers)

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with this product.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS:

<u>THREADED:</u>	0-500 psig	CGA 510
	0-3000 psig	CGA 350
	3001-5000 psig	CGA 695
	5501-7500 psig	CGA 703

PIN-INDEXED YOKE: Not Applicable.

ULTRA HIGH INTEGRITY: Not Applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT.** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Methane does not reach its lower flammability limit of 5%. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of this product. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION:** Wear leather gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used. Use low-temperature protective gloves when working with containers of Liquid Methane.

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 15.6°C (60°F) and 1 atm:** 0.04235 lb/ft<sup>3</sup> (0.6784 kg/m<sup>3</sup>)

**BOILING POINT:** -258.7°F (-161°C)

**FREEZING/MELTING POINT @ 10 psig:** -182°C (-296.5°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 0.555

**pH:** Not applicable.

**SOLUBILITY IN WATER vol/vol @ 37.8°C (100°F):** Very slight.

**MOLECULAR WEIGHT:** 16.042

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**EXPANSION RATIO:** Not applicable.

**ODOR THRESHOLD:** Not determined.

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 23.6

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** Not applicable.

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless, odorless gas.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties of this gas. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

**NOTE:** This gas is lighter than air and must not be allowed to accumulate in elevated locations.

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine, pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA.** There is no specific toxicology data for Methane. Methane is a simple asphyxiant, which acts to displace oxygen in the environment.

**SUSPECTED CANCER AGENT.** Methane is not found on the following lists. FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**SENSITIZATION TO THE PRODUCT:** Methane is not known to cause sensitization in humans.

**IRRITANCY OF PRODUCT.** This product is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Methane on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for. Methane

Embryotoxicity: No embryotoxic effects have been described for Methane.

Teratogenicity: No teratogenicity effects have been described for Methane

Reproductive Toxicity: No reproductive toxicity effects have been described for Methane

*A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to Methane.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Methane.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary, treat symptoms; reduce or eliminate exposure.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS.** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE.** No evidence is currently available on this product's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:** Methane, compressed

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.1 (Flammable Gas)

**UN IDENTIFICATION NUMBER:** UN 1971

**PACKING GROUP:** Not applicable.

**DOT LABEL(S) REQUIRED:** Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 115

## 14. TRANSPORTATION INFORMATION (Continued)

**MARINE POLLUTANT:** Methane is not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173 301 (b)).

**TRANSPORT-CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Methane is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**TSCA INVENTORY STATUS:** Methane is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

### OTHER U.S. FEDERAL REGULATIONS.

- Methane does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Methane is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for of this gas is 10,000 pounds.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Methane is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lb (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Methane is listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance. The threshold quantity for Methane under this regulation is 10,000 lbs.

**OTHER CANADIAN REGULATIONS:** Methane is categorized as a Controlled Product, Hazard Classes A, and B1 as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION:** Methane is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Methane

California - Permissible Exposure Limits for Chemical Contaminants: Methane

Florida - Substance List: No.

Illinois - Toxic Substance List: Methane

Kansas - Section 302/313 List: No

Massachusetts - Substance List: Methane

Minnesota - List of Hazardous Substances: Methane

Missouri - Employer Information/Toxic Substance List: Methane

New Jersey - Right to Know Hazardous Substance List: Methane

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Methane

Rhode Island - Hazardous Substance List: Methane.

Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No

Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65:** Methane is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923. Telephone: (703) 788-2700.

P-1	"Safe Handling of Compressed Gases in Containers"
P-14	"Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"
SB-8	"Use of Oxy-fuel Gas Welding and Cutting Apparatus"
SB-2	"Oxygen Deficient Atmospheres"
	"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**AIR LIQUIDE**

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

## 1. PRODUCT IDENTIFICATION

**CHEMICAL NAME; CLASS:**     **HYDROGEN**

**SYNONYMS:** Hydrogen, Compressed; Molecular Hydrogen

**CHEMICAL FAMILY:** Flammable Gas

**FORMULA:** H<sub>2</sub>

**PRODUCT USE**

Document Number: 10050

For general analytical/synthetic chemical uses.

**MANUFACTURED/SUPPLIED FOR:**  
**ADDRESS:**

**AIR LIQUIDE**

9101-LBJ-FREEWAY, SUITE-800  
DALLAS, TX-75243

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-972/301-5200

Fax on Demand: 1-800/231-1366

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Hydrogen	1333-74-0	99.9%	There are no specific exposure limits for Hydrogen. Hydrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 0.1%	None of the trace impurities in Hydrogen contribute significantly to the hazards associated with the product. All hazard information pertinent to Hydrogen has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

NE = Not Established

C = Ceiling Limit

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-1993 format.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW** Hydrogen is a colorless, odorless, flammable gas. Hydrogen poses a serious fire hazard when it is accidentally released. The main health hazard associated with releases of this gas is asphyxiation, by displacement of oxygen. Flame or high temperature impinging on a localized area of the cylinder of Hydrogen can cause the cylinder to rupture or burst without activating the cylinder's relief devices. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant route of over-exposure for Hydrogen is by inhalation.

**INHALATION:** High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Hydrogen in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing an oxygen deficient atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

**CONCENTRATION**

12-16% Oxygen:

10-14% Oxygen:

6-10% Oxygen:

Below 6%:

**SYMPTOM OF EXPOSURE**

Breathing and pulse rate increased, muscular coordination slightly disturbed.

Emotional upset, abnormal fatigue, disturbed respiration

Nausea and vomiting, collapse or loss of consciousness

Convulsive movements, possible respiratory collapse, and death

**HEALTH EFFECTS OR RISKS FROM EXPOSURE:** An **Explanation in Lay Terms.** Over-exposure to this gas mixture may cause the following health effects

**ACUTE** The most significant hazard associated with Hydrogen is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC** There are currently no known adverse health effects associated with chronic exposure to the components of this compressed gas

**TARGET ORGANS:** Respiratory system.

**HAZARDOUS MATERIAL INFORMATION SYSTEM**

**HEALTH**

(BLUE)

0

**FLAMMABILITY**

(RED)

4

**REACTIVITY**

(YELLOW)

0

**PROTECTIVE EQUIPMENT**

B

EYES

RESPIRATORY

HANDS

BODY

See Section 8

For routine industrial applications

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO HYDROGEN WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, **Self-Contained Breathing Apparatus** and **Fire-Retardant Personal Protective equipment** should be worn. **Adequate fire protection must be provided during rescue situations.**

Remove victim(s) to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable, flammable gas

**AUTOIGNITION TEMPERATURE:** 565 °C (1050°F)

## 5. FIRE-FIGHTING MEASURES (Continued)

**FLAMMABLE LIMITS** (in air by volume, %):

Lower (LEL): 4.0%

Upper (UEL): 75%

**FIRE EXTINGUISHING MATERIALS.** Extinguish Hydrogen fires by shutting-off the source of the gas. Use water spray to cool fire-exposed containers, structures, and equipment.

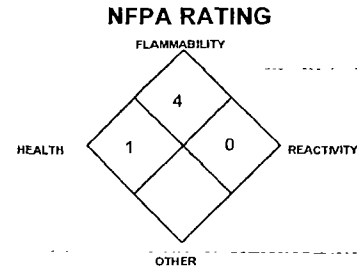
**UNUSUAL FIRE AND EXPLOSION HAZARDS** An extreme explosion hazard exists in areas in which the gas has been released, but the material has not yet ignited. **Hydrogen burns with an almost invisible blue flame.**

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of Hydrogen can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Static discharge may cause this gas to ignite explosively. Due to low electrical conductivity, this substance can generate electrostatic charges during handling operations.

**SPECIAL FIRE-FIGHTING PROCEDURES.** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. The best fire-fighting technique may be simply to let the burning gas escape from the cylinder or pipeline. Stop the leak before extinguishing fire. If the fire is extinguished before the leak is sealed, the still-leaking gas could explosively re-ignite without warning and cause extensive damage, injury, or fatality. In this case, increase ventilation to prevent flammable or explosive mixture formation. Evacuation may be necessary. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles.



## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a gas release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas, which is lighter than air, to dissipate. Combustible gas concentration must be below 10% of the LEL (4.0%) prior to entry. Monitor the surrounding area for combustible gas levels and oxygen level. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area, away from sources of ignition, and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of Hydrogen could occur without any significant warning symptoms. Non-sparking tools should be used.

**STORAGE AND HANDLING PRACTICES** Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits.



## 7. HANDLING and USE (Continued)

**STORAGE AND HANDLING PRACTICES (continued):** Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity)

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Keep the smallest amount necessary on-site at any one-time. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with Hydrogen. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information, refer to NFPA 50A and OSHA 1910.103.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS:

<b>THREADED:</b>	0-3000 psig	CGA 350
	3001-5500 psig	CGA 695
	5501-7500 psig	CGA 703

**PIN-INDEXED YOKE:** Not Applicable.

**ULTRA HIGH INTEGRITY:** 724.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Hydrogen does not reach its lower flammability limit of 4.0%. Local exhaust ventilation is preferred, because it prevents chemical dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of flammable gas.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

**RESPIRATORY PROTECTION.** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of Hydrogen. During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION** Wear leather gloves when handling cylinders of Hydrogen. Otherwise, wear glove protection appropriate to the specific operation for which Hydrogen is used

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. Transfer of large quantities under pressure may require use of fire retardant clothing

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.00521 lb/ft<sup>3</sup> (0.08342 kg/m<sup>3</sup>)

**BOILING POINT @ 1 atm.** -423.0 °F; -253.0 °C

**FREEZING/MELTING POINT @ 1 atm:** -259°C (-434.6°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F):** 0.069

**pH.** Not applicable.

**SOLUBILITY IN WATER Vol/Vol @ 15.6°C (60°F):** 0.019 **MOLECULAR WEIGHT:** 2.016

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**EXPANSION RATIO:** Not applicable.

**ODOR THRESHOLD:** Not applicable

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 192

**VAPOR PRESSURE @ 21.1°C (70°F) psig.** Not applicable.

**COEFFICIENT WATER/OIL DISTRIBUTION.** Not applicable

**APPEARANCE AND COLOR.** Colorless, odorless gas at standard atmosphere and temperature.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation. **NOTE:** This gas is lighter than air and must not be allowed to accumulate in elevated locations.

## 10. STABILITY and REACTIVITY

**STABILITY.** Stable.

**DECOMPOSITION PRODUCTS:** Hydrogen, when ignited in the presence of oxygen, water will be produced.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine, pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride). Oxygen/Hydrogen mixtures can explode on contact with a catalyst such as platinum

**HAZARDOUS POLYMERIZATION.** Will not occur

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA.** There are no specific toxicology data for Hydrogen. Hydrogen is a simple asphyxiant (SA), which acts to displace oxygen in the environment

**SUSPECTED CANCER AGENT:** Hydrogen is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Hydrogen is not irritating, however, contact with rapidly expanding gases can cause frostbite to exposed tissue

**SENSITIZATION TO THE PRODUCT:** Hydrogen is not known to cause sensitization in humans.

**REPRODUCTIVE TOXICITY INFORMATION.** Listed below is information concerning the effects of Hydrogen on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Hydrogen.

Embryotoxicity: No embryotoxic effects have been described for Hydrogen.

Teratogenicity: No teratogenicity effects have been described for Hydrogen.

Reproductive Toxicity: No reproductive toxicity effects have been described for Hydrogen

## 11. TOXICOLOGICAL INFORMATION (Continued)

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE.** Acute or chronic respiratory conditions may be aggravated by over-exposure to Hydrogen.

**BIOLOGICAL EXPOSURE INDICES (BEIs)** Currently, Biological Exposure Indices (BEIs) are not applicable for Hydrogen.

**RECOMMENDATIONS TO PHYSICIANS.** Administer oxygen, if necessary, treat symptoms; reduce or eliminate exposure.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY** Hydrogen occurs naturally in the atmosphere. This gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS.** Any adverse effect on animals would be related to oxygen deficient environments. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE** No evidence is currently available on Hydrogen's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL.** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

For emergency disposal, secure the cylinder and slowly discharge the gas to the atmosphere in a well-ventilated area or outdoors, away from all sources of ignition.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:** Hydrogen, compressed

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.1 (Flammable Gas)

**UN IDENTIFICATION NUMBER:** UN 1049

**PACKING GROUP:** Not applicable.

**DOT LABEL(S) REQUIRED:** Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 115

**MARINE POLLUTANT:** Hydrogen is not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilation vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Hydrogen is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**TSCA INVENTORY STATUS:** Hydrogen is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

## 15. REGULATORY INFORMATION (Continued)

#### OTHER U.S. FEDERAL REGULATIONS:

- Hydrogen is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Depending on specific operations involving the use of Hydrogen, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Hydrogen is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Hydrogen does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Hydrogen is listed as Regulated Substances in quantities of 10,000 lbs (4,553 kg) or greater, per 40 CFR, Part 68, of the Risk Management for Chemical Accidental Release.

**OTHER CANADIAN REGULATIONS:** Hydrogen is categorized as a Controlled Product, Hazard Class A, B1 as per the Controlled Product Regulations.

**STATE REGULATORY INFORMATION** Hydrogen is covered under specific State regulations, as denoted below.

Alaska - Designated Toxic and Hazardous Substances: Hydrogen

California - Permissible Exposure Limits for Chemical Contaminants: Hydrogen

Florida - Substance List: Hydrogen

Illinois - Toxic Substance List: Hydrogen

Kansas - Section 302/313 List: No

Massachusetts - Substance List: Hydrogen.

Minnesota - List of Hazardous Substances: Hydrogen

Missouri - Employer Information/Toxic Substance List: Hydrogen

New Jersey - Right to Know Hazardous Substance List: Hydrogen

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Hydrogen.

Rhode Island - Hazardous Substance List: Hydrogen

Texas - Hazardous Substance List: No.

West Virginia - Hazardous Substance List: No

Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65.** Hydrogen is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about Hydrogen, can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923. Telephone. (703) 788-2700.

G-5 "Hydrogen"

G-5.3 "Commodity Specification for Hydrogen"

P-1 "Safe Handling of Compressed Gases in Containers"

P-14 "Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"

SB-2 "Oxygen Deficient Atmospheres"

"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.

9163 Chesapeake Drive, San Diego, CA 92123-1002

619/565-0302

Fax on Demand: 1-800/231-1366



**AIR LIQUIDE**

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to Hydrogen. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If Hydrogen is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS: ETHYLENE OXIDE**

**SYNONYMS:** Amprolene; Anprolene; Anproline; Dihydrooxirene; Dimethylene Oxide,  
ENT 26,263; E.O.; 1,2-Epoxyethane; Ethene Oxide; ETO; Merpol; Oxyane,  
Oxacyclopropane; Oxidoethane;  $\alpha, \beta$ -Oxidoethane; Oxirane; Oxyfume; T-Gas

**CHEMICAL FAMILY NAME:** Hydride

**FORMULA:**  $C_2H_4O$

**PRODUCT USE:**

Document Number: 20068

Chemical intermediate for manufacture of ethylene glycol and higher glycols; sterilant for surgical instruments; and fumigant for foodstuffs and textiles; component of fungicide in agricultural applications; starting material for acrylonitrile and non-ionic surfactants.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896  
Fax on Demand: 1-800/231-1366

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Ethylene Oxide is a colorless, highly reactive, toxic, flammable gas at normal temperature pressure, and a colorless liquid below 10.4°C (50.7°F). Both the liquid and the gas have an ether-like odor. Exposure to even very small quantities can result in severe health effects; inhalation of higher concentrations may be fatal. Ethylene Oxide is a suspected human carcinogen and a reproductive toxin. Ethylene Oxide can form flammable mixtures in air and presents an extreme fire hazard when accidentally released. Ethylene Oxide is slightly heavier than air and may travel a considerable distance to a source of ignition and flash-back to a leak. Ethylene oxide is highly reactive and can undergo hazardous polymerization if contaminated. Emergency responders must wear adequate personal protective equipment and provide suitable fire protection during response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant routes of over-exposure for Ethylene Oxide are by inhalation, ingestion and skin and eye contact.

**INHALATION:** Ethylene Oxide is considered moderately toxic by inhalation. Exposure to low concentrations of vapors of Ethylene Oxide can result in nausea, vomiting, and other effects on the central nervous system. These symptoms can be delayed for five or more hours after exposure. Inhalation of low to moderate concentrations of Ethylene Oxide will cause irritation of the nose, throat, mucous membranes and upper respiratory tract. Inhalation of high concentrations of Ethylene Oxide (as may occur if Ethylene Oxide is used or released in a poorly-ventilated area or confined space, or during a release of large volumes of this product), can cause potentially fatal pulmonary edema. Odor is not a reliable warning property for Ethylene Oxide; inhalation of low concentrations of this gas can cause olfactory fatigue rather rapidly.

**CONTACT WITH SKIN or EYES:** Contact of vapors or liquid with the skin can cause blistering to severe, delayed chemical burns. Skin ulcers may be delayed, often appearing one to five hours after contact. Allergic dermatitis may occur after prolonged or repeated skin exposures. Contact of vapors with the eyes can cause moderate to severe irritation, resulting in tearing, redness and burns. Direct contact of Liquid Ethylene Oxide with the eyes, will cause severe irritation and corneal injury, possibly leading to blindness. Repeated eye over-exposure may lead to cataracts.

**SKIN ABSORPTION:** Ethylene Oxide may be absorbed through intact skin, causing systemic poisoning as described under "Other Potential Health Effects".

**INGESTION:** Ingestion is not anticipated to be a significant route of industrial over-exposure for Ethylene Oxide. If ingested, Ethylene Oxide is toxic by ingestion, causing symptoms of systemic poisoning as described under "Other Potential Health Effects".

**OTHER POTENTIAL HEALTH EFFECTS:** Ethylene Oxide is a poison by ingestion, intraperitoneal, subcutaneous and intravenous routes. Human system effects by these routes and by inhalation can lead to convulsions, nausea, vomiting, olfactory and pulmonary changes, drowsiness, weakness and incoordination, EKG abnormalities, and cyanosis. Ethylene Oxide is a suspected human carcinogen (potentially causing leukemia, as well as stomach and pancreatic cancers) with experimental carcinogenic, tumorigenic, neoplastigenic and teratogenic data. Over-exposure to Ethylene Oxide may also cause liver, kidney, and central nervous system damage. For further information, see Section 11, Toxicological Information.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to Ethylene Oxide may cause the following health effects.

**ACUTE** Ethylene Oxide is a severe irritant via inhalation, skin and eye contact and may cause delayed injury. Exposure to low concentrations by inhalation can cause nausea and vomiting, which can also be delayed after exposure. Acute over-exposure to high concentrations via inhalation can lead to potentially fatal pulmonary edema. Contact of the liquid with the eyes can cause corneal burns and possibly blindness. Acute exposure via all routes can lead to systemic poisoning, leading to symptoms of convulsions, nausea, vomiting, cyanosis and changes in olfactory senses, pulmonary system and to EKG abnormalities.

## 2. HAZARD IDENTIFICATION (Continued)

**CHRONIC:** Ethylene Oxide is a suspected human carcinogen. Experimental data are available as to the tumorigenic, carcinogenic, neoplastigenic and teratogenic properties of Ethylene Oxide. Refer to Section 11 (Toxicology Information) for additional data. Repeated exposure to low levels of the gas or liquid may lead to dermatitis, with symptoms of redness, dried and cracked skin.

**TARGET ORGANS:** Respiratory system, skin, eyes, reproductive system, kidney, liver.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Ethylene Oxide	75-21-8	> 99.0%	1, A2 Suspected Human Carcinogen	NE	1	5 (15 minute excursion)	800	NIOSH REL. < 0.1 TWA, 5 C (10 minutes/day), Carcinogen. OSHA Action Level 0.5 ppm IARC-2A, MAK-A2, NTP-2A, OSHA-X
Maximum Impurities		< 1.0%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400 1-2004 format.

## 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO ETHYLENE OXIDE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Chemically-Resistant and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

Remove victim(s) to fresh air, as quickly as possible. Treatment for Ethylene Oxide poisoning must be prompt. All over-exposed individuals must receive medical evaluation, because the development of symptoms to potentially life-threatening conditions may be delayed. Keep victims warm and comfortable.

**INHALATION.** If vapors, mists, or sprays of any of Ethylene Oxide are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Remove or cover gross contamination to avoid exposure to rescuers.

**SKIN EXPOSURE:** If Ethylene Oxide contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s). Specific notes to physicians are located in Section 11, Toxicological Information.

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** -20°C (-4°F)

**AUTOIGNITION TEMPERATURE:** 429°C (804°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 3.0%

Upper (UEL): 100%

**FIRE EXTINGUISHING MATERIALS:** Extinguish Ethylene Oxide fires by shutting-off the source of the gas. Use a fine water spray or fog to reduce combustion products formed in air. Cool fire-exposed cylinders with water spray from the maximum distance possible. Alcohol foam, carbon dioxide or dry chemical forms of fire extinguishing agents can be used against Ethylene Oxide fires.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Ethylene oxide presents a serious health hazard to firefighters; short-term over-exposures to this substance can cause serious injury or death. Ethylene Oxide is a Class IA flammable liquid. Ethylene Oxide will readily ignite at room temperature. Ethylene Oxide is slightly heavier than air and can travel considerable distances to a source of ignition and flash-back to the leak. Ethylene Oxide can react violently with water, and can undergo hazardous polymerization.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of this product can be very dangerous. Direct flame exposure on the cylinder wall can cause an explosion either by BLEVE (Boiling Liquid Expanding Vapor Explosion), or by exothermic decomposition. This is a catastrophic failure of the cylinder releasing the contents into a massive fireball and explosion. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Sensitive. Static charge can build-up and may cause this product to ignite explosively if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** In the event of fire, cool containers of this product with water to prevent failure. Use a water spray or fog to reduce or direct vapors. Water is not effective in actually extinguishing a fire involving Ethylene Oxide, due to its low flash point and the potential for an explosive chemical reaction. Stop the leak or discharge, if possible. For small releases, if it is not possible to stop the leak, and it does not endanger personnel, let the fire burn itself out. Incipient fire responders should wear eye protection. Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Appropriate chemically-protective clothing may be necessary. Keep away from low-lying areas. Stay upwind. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of vessel exposures, evacuate the area. Follow the guidelines of the North American Emergency Response Guidebook (Guide #119).

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** If a leak occurs of a sufficient quantity to cause a dangerous level of Ethylene Oxide, evacuate the immediate area of all personnel. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment must be used. In case of a release, clear the affected area, protect people, and respond with trained personnel.

Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. If the gas is leaking from cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response.

Minimum Personal Protective Equipment should be **Level A: fully encapsulating suit, triple-layer of gloves (neoprene over nitrile and N-Dex or latex), chemically-resistant boots, hard-hat, and Self-Contained Breathing Apparatus.** Level A protection must be worn during emergency response situations in all areas in which the level of exposure to Ethylene Oxide is above 50% of the TLV (1 ppm). Fire retardant gear must be worn under Level A protection when Ethylene Oxide levels exceed 10% of the LEL (3.0%).

Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate, if it can be done to an area in which there are no personnel. Combustible gas concentration must be below 10% of the LEL (3.0%) prior to entry. Monitor the surrounding area for toxic Ethylene Oxide levels as well as combustible gas levels and oxygen level. The atmosphere must be below 50% of the TLV (1 ppm) of Ethylene Oxide and must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area.



## 7. HANDLING AND STORAGE

If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

NOTE. A colorimetric tubes and direct reading instruments are available for Ethylene Oxide.

**THIS IS AN EXTREMELY TOXIC, REACTIVE, FLAMMABLE GAS.** Protection of all personnel and the area must be maintained. **WORK PRACTICES AND HYGIENE PRACTICES:** All areas where Ethylene Oxide is used should be monitored with very sensitive gas detection instruments. Detection of concentrations below 50% of the TLV level of 1 ppm should trigger immediate response and corrective action. Detection of higher levels should initiate an alarm calling for evacuation of all personnel with the potential to be exposed. Due to the toxicity of Ethylene Oxide, all contaminated clothing should be removed and placed in a sealed container for proper disposal.

NOTE: Refer to the OSHA Ethylene Oxide Standard (29 CFR 1910.1047) for specific requirements associated with the use of this gas. The Action Level for Ethylene Oxide is 0.5 ppm. In workplaces where employees are exposed above the Action Level, the OSHA requirements for monitoring, establishment of regulated areas, methods of compliance, respiratory protection, emergency response protocol, medical surveillance, training, and record-keeping must be followed.

**STORAGE AND HANDLING PRACTICES:** Entrances to regulated areas (as defined by the OSHA Ethylene Oxide Standard) must be posted with legible signs which reads as follows.

**DANGER**  
**ETHYLENE OXIDE**  
**CANCER HAZARD AND REPRODUCTIVE HAZARD**  
**AUTHORIZED PERSONNEL ONLY**  
**RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED TO**  
**BE WORN IN THIS AREA**

Additionally, refer to Appendix A of the Ethylene Oxide Standard (29 CFR 1910.1047) to determine specific workplace practices (e.g., changing supply line filters, work in restricted access areas, door opening procedures, sterilizers without purge cycles, chamber unloading procedures, maintenance).

Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity). Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

## 7. HANDLING AND STORAGE (Continued)

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable, reactive, and toxic gas storage. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty.

THREADED: CGA 510

PIN-INDEXED YOKE: Not applicable

ULTRA HIGH INTEGRITY: Not applicable. **PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Install automatic monitoring equipment to detect the level of Ethylene Oxide. Provide explosion-proof ventilation adequate to ensure Ethylene Oxide does not reach its lower flammability limit of 3.0%. Process enclosure and local exhaust ventilation is recommended for operations involving Ethylene Oxide. Refer to Appendix A of the OSHA Ethylene Oxide Standard (29 CFR 1910.1047) for specific information on workplace design and engineering controls (e.g. gas line hand valves, "capture boxes", and ventilation systems for aeration units, sterilizer relief valves, and in areas in which cylinder are changed).

**RESPIRATORY PROTECTION:** Maintain Ethylene Oxide levels below 50% of the TLV (1 ppm) and oxygen levels above 19.5% in the workplace. The use of supplied air respiratory protection is recommended when changing Ethylene Oxide cylinders or working on Ethylene Oxide systems. Use supplied air respiratory protection when Ethylene Oxide levels exceed 50% of the TLV (1 ppm), oxygen levels are below 19.5%, or during emergency response to a release of this product. During an emergency situation, before entering the area, check the concentration of Ethylene Oxide and oxygen. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards. The following NIOSH guidelines for respirator selection are provided for additional information:

### CONCENTRATION

Up to 5 ppm

### RESPIRATORY EQUIPMENT

Gas mask with canister, full-facepiece SCBA or full-facepiece Supplied Air Respirator (SAR)

Emergency or Planned Entry into Unknown Concentration or IDLH Conditions: Positive-pressure, full facepiece SCBA or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister to protect against Ethylene Oxide or escape-type SCBA should be used.

The IDLH concentration for Ethylene Oxide is 800 ppm, however, the carcinogenic properties of Ethylene Oxide were not taken into consideration in determining the IDLH.

**NOTE:** Follow the specific respiratory selection guidelines of the OSHA Ethylene Oxide Standard in regulated areas (as defined by 29 CFR 1910.1047)

**EYE PROTECTION.** Safety glasses or goggles, with faceshield.

**HAND PROTECTION:** Wear leather gloves for handling of cylinders of this product; however, if contaminated, should be discarded as Ethylene Oxide will be retained in the leather and can cause burns or allergic skin rashes. Wear chemically impervious gloves appropriate for Ethylene Oxide for industrial use. Gloves should have a resistance to breakthrough greater than 8 hours, such as polyvinyl alcohol, Barnacle™, Chemrel™, or Responder™. Natural rubber, neoprene, nitrile rubber, or polyethylene, polyvinyl chloride, Viton™, Saranex™ are not recommended. Use triple gloves for spill response (see Section 6, Accidental Release Measures)

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

**BODY PROTECTION:** Use body protection appropriate for task. Cotton clothing is recommended for use to prevent static electric build-up. Safety shoes are recommended when handling cylinders. For emergency response operations, clothing resistant to the toxic effects of Ethylene Oxide is required (i.e., Level A Protection)

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 20°C (68°F) and 21.1 psia (146.0 kPa abs):** 0.1751 lb/ft<sup>3</sup> (2.804 kg/m<sup>3</sup>)

**LIQUID DENSITY @ 20°C (68°F) and 21.1 psia (146.0 kPa abs):** 54.30 lb/ft<sup>3</sup> (869.8 kg/m<sup>3</sup>)

**BOILING POINT @ 14.7 psia (101.3 kPa abs):** 10.4°C (50.7°F)

**FREEZING/MELTING POINT @ 14.7 psia (101.3 kPa abs):** -112.6°C (-170.7°F)

**SPECIFIC GRAVITY (air = 1):** 1.52

**pH:** Not applicable

**SOLUBILITY IN WATER:** Miscible.

**MOLECULAR WEIGHT:** 44.05

**EVAPORATION RATE (nBuAc = 1):** Not available

**EXPANSION RATIO:** Not applicable.

**VAPOR PRESSURE @ 20°C (68°F):** 21.1 psia (146.0 kPa)

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 5.0

**ODOR THRESHOLD:** 420 ppm (detection), 490 ppm (recognition)

**COEFFICIENT WATER/OIL DISTRIBUTION:** Log P (oct) = -0.30.

**APPEARANCE AND COLOR:** Colorless gas with an ether-like odor at normal pressure and temperature; colorless liquid, with an ether-like odor below 10.4°C (50.7°F)

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The odor of Ethylene Oxide is not a good warning property as it will rapidly cause olfactory fatigue. Monitoring systems must be used for detection of this gas.

## 10. STABILITY and REACTIVITY

**STABILITY** Ethylene Oxide is highly reactive. Ethylene Oxide may undergo a runaway reaction with water.

**DECOMPOSITION PRODUCTS:** When involved in a fire, this material may decompose and produce toxic gases (i.e., carbon monoxide, carbon dioxide), irritating fumes and acid smoke

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Ethylene Oxide can polymerize violently when in contact with highly catalytic surfaces such as anhydrous iron, tin, aluminum chloride, and ammonia, pure iron, aluminum oxides, and alkali metal hydroxides. Ethylene Oxide is incompatible with bases, alcohols, air, m-nitroaniline, trimethyl amine, copper, iron chlorides, iron oxides, magnesium perchlorate, mercaptans, potassium, alkane thiols and bromomethane. Ethylene Oxide reacts explosively with glycerol above 200°F (93.3°C). Rapid compression of the vapor of Ethylene Oxide with air can cause an explosion

**HAZARDOUS POLYMERIZATION.** Hazardous polymerization may occur if contaminated or in contact with incompatible materials, as listed above

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to moisture and to heat, sparks and other sources of ignition.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following data are available for Ethylene Oxide:

Unscheduled DNA Synthesis-Human leukocyte 4 mmol/L  
Sister Chromatid Exchange-Human lymphocyte 4 pph  
Teratogenesis, Carcinogenesis, and Mutagenesis  
Skin-Human 1%/7 seconds  
Eye effects-Rabbit, adult 18 mg/6 hours Moderate irritation effects  
Mutation in Microorganisms-other microorganisms 540 mg/L  
Sister Chromatid Exchange-Human, lymphocyte 10 mg/L  
DNA Damage-Mouse-Intraperitoneal 100 mg/kg  
Dominant Lethal Test-Mouse-Inhalation 500 ppm/6 hours/4 days-continuous  
Intraperitoneal-Mouse TDLo 750 mg/kg (male 25D pre) Reproductive effects  
Inhalation-Mouse TCLo 1200 ppm/90 minutes (female 1 day post) Teratogenic effects  
Oral-Rat TDLo 1186 mg/kg/2 years- intermittent Carcinogenic effects  
Inhalation-Rat TCLo 33 ppm/6 hours/2 years- intermittent Carcinogenic effects  
Inhalation-Mouse TDLo 50 ppm/6 hours/2 years Carcinogenic effects, tumors  
Subcutaneous-Mouse TDLo 292 mg/kg/95 weeks- intermittent Carcinogenic effects  
Subcutaneous-Mouse TD 1090 mg/kg/91 weeks - intermittent Neoplastic effects

Subcutaneous-Mouse TD 908 mg/kg/95 weeks - Intermittent Carcinogenic effects  
Subcutaneous-Mouse TD 2576 mg/kg/95 weeks - intermittent Carcinogenic effects  
Oral-Rat TD 5112 mg/kg/2 years - intermittent Carcinogenic effects  
Inhalation-Rat TC 50 ppm/7 hours/2 years - intermittent Carcinogenic effects  
Inhalation-Rat TC 33 ppm/6 hours/2 years - intermittent Equivocal tumorigenic agent  
Inhalation-Rat TC 33 ppm/6 hours/2 years - intermittent Carcinogenic effects  
Inhalation-Human TCLo 12,500 ppm/10 seconds nose  
Inhalation-Woman TCLo 500 ppm/2 minutes. Central nervous Gastrointestinal tract, Pulmonary system effects  
Oral-Rat LD<sub>50</sub> 72 mg/kg  
Inhalation-Rat LC<sub>50</sub> 800 ppm/4 hours  
Subcutaneous-Rat LD<sub>50</sub> 187 mg/kg  
Inhalation-Mouse LC<sub>50</sub> 836 ppm/4 hours  
Intraperitoneal-Mouse LD<sub>50</sub> 175 mg/kg  
Intravenous-Mouse LD<sub>50</sub> 290 mg/kg  
Inhalation-Dog, adult LC<sub>50</sub> 960 ppm/4 hours  
Subcutaneous-Cat, adult LDLo 100 mg/kg  
Intravenous-Rabbit, adult LDLo 175 mg/kg  
Inhalation-Guinea Pig, adult LC<sub>50</sub> 1500 mg/m<sup>3</sup>/4 hours

**SUSPECTED CANCER AGENT:** Ethylene Oxide is listed as follows IARC-2A (Probably Carcinogenic to Humans; Limited Human Evidence/Sufficient Evidence in Experimental Animals), MAK-A2 (Unmistakable Carcinogenic in Animal Experimentation Only), NTP-2A (Reasonably Anticipated to be a Carcinogen; Limited Evidence of Carcinogenicity from Studies with Humans); OSHA-X (Carcinogen); NIOSH-X (Carcinogen), ACGIH-A2 (Suspected Human Carcinogen).

**IRRITANCY OF PRODUCT:** Ethylene Oxide is moderately to severely irritating to contaminated skin and severely irritating to the eyes

**SENSITIZATION TO THE PRODUCT:** Ethylene Oxide is a sensitizer after prolonged or repeated over-exposures.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of this product on the human reproductive system.

**Mutagenicity.** Studies indicate that Ethylene Oxide workers are more likely to have chromosomal damage than similar workers not exposed to this substance. Human mutation data are also available for Ethylene Oxide; these data were obtained during clinical studies on specific human tissues exposed to this substance.

**Embryotoxicity** Ethylene Oxide may cause embryotoxic effects. There is an increased incidence of spontaneous abortions among workers in Ethylene Oxide production.

**Teratogenicity** Ethylene Oxide may be teratogenic and damage the developing fetus. Animal teratogenicity data are available from clinical studies.

**Reproductive Toxicity:** There is an increased incidence of gynecological disorders among workers in ethylene oxide production. One study indicated a reduced sperm count in exposed workers. Data on adverse reproductive effects are also available from animal studies.

*A **mutagen** is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An **embryotoxin** is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A **teratogen** is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A **reproductive toxin** is any substance which interferes in any way with the reproductive process.*

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to this product. Additionally, blood, kidney, liver and cardiovascular conditions may also be aggravated (depending on the severity and duration of the over-exposure).

**RECOMMENDATIONS TO PHYSICIANS.** If victim experiences nausea and vomiting, sufficient quantities of warm water should be administered in order to wash out stomach. Unpublished reports indicate that, for persistent nausea and vomiting caused by inhalation of Ethylene Oxide vapors, an intramuscular injection of sodium phenobarbital (of 2 grains), is very helpful in controlling such symptoms.

## 11. TOXICOLOGICAL INFORMATION (Continued)

In event of severe exposure and if victim is still breathing, victim should be administered 100% oxygen under positive exhalation pressure for one-half hour periods every hour for at least three hours. If no sign of lung congestion appears after this period and if breathing is easy and skin and mucous membranes show good color, oxygen therapy can be discontinued. If breathing has stopped, artificial respiration should be started preferably while administering oxygen, preferably.

For skin burns resulting in blister formation, evacuate blisters and apply solid petroleum dressings. Skin burns from exposure to aqueous solutions of Ethylene Oxide should receive copious irrigation of normal saline followed by application of a topical antimicrobial agent, such as silver sulfadiazine cream and a dressing. Signs of burns may not appear after exposure for up to 5 hours.

Refer to the OSHA Ethylene Oxide Standard (29 CFR 1910.1047; paragraph I) for specific information on Medical Surveillance requirements (i.e. for the general physical exam, medical history, specific tests, and re-examination protocol). Physical examinations must be given with emphasis on the skin and eyes, as well as the pulmonary, hematologic, neurologic, and reproductive systems.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Ethylene Oxide.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** This gas will be dissipated rapidly in well-ventilated areas. Based on limited data, Ethylene Oxide is expected to biodegrade at a reasonable rate after acclimation.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Ethylene Oxide is an extremely toxic gas which can be harmful or fatal to over-exposed plant or animal life. Refer to Section 11 (Toxicology Information) for data on Ethylene Oxide's effects on test animals during clinical studies. No specific studies on the bio-concentration of Ethylene Oxide have been completed, however, due to the low octanol/water partition coefficient of  $K_{ow} = -0.3$ , Ethylene Oxide is not expected to bio-concentrate significantly.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** Ethylene Oxide is an extremely toxic gas which is soluble in water; therefore, this gas can be harmful or fatal to aquatic life in contaminated bodies of water. The following aquatic toxicity data are available for Ethylene Oxide:

LC<sub>50</sub> Goldfish 90 mg/L/24 hours, modified ASTM D 1345.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

<b>PROPER SHIPPING NAME:</b>	Ethylene Oxide
<b>HAZARD CLASS NUMBER and DESCRIPTION:</b>	2.3 (Poison Gas)
<b>UN IDENTIFICATION NUMBER:</b>	UN 1040
<b>PACKING GROUP:</b>	Not applicable
<b>DOT LABEL(S) REQUIRED:</b>	Poison Gas, Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 119

**MARINE POLLUTANT:** Ethylene Oxide is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL PROVISION:** This material must be described "Poison-Inhalation Hazard Zone D" on shipping papers and containers must be marked per the requirements of 49 CFR 172.313.

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilation vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

## 14. TRANSPORTATION INFORMATION (Continued)

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Ethylene Oxide is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

COMPONENT	SARA 302	SARA 304	SARA 313
Ethylene Oxide	YES	YES	YES

This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**SARA THRESHOLD PLANNING QUANTITY:** 1000 pounds

**TSCA INVENTORY STATUS** Ethylene Oxide is listed on the TSCA Inventory

**CERCLA REPORTABLE QUANTITY (RQ):** 10 pounds

### OTHER U.S. FEDERAL REGULATIONS:

- Ethylene Oxide, is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Ethylene Oxide does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Ethylene Oxide is subject to requirements of CFR 29 1910.1000. Ethylene Oxide is listed in Table Z 1.
- Ethylene Oxide is regulated under the Ethylene Oxide Standard (29 CFR 1910.1047).
- Ethylene Oxide (also as Oxirane) is listed in 40 CFR, Part 68 (Risk Management for Chemical Release Prevention), Table 1, as an extremely hazardous and flammable substance. The threshold quantity for Ethylene Oxide under this regulation is 10,000 lbs
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Ethylene Oxide is listed in Appendix A. The threshold quantity for Ethylene Oxide, under this regulation is 5000 lbs.

**OTHER CANADIAN REGULATIONS:** Ethylene Oxide is categorized as a Controlled Product, Hazard Classes A, B1, D1A, D2A, and F, s per the Controlled Product Regulations

**STATE REGULATORY INFORMATION** Ethylene Oxide is covered under specific State regulations, as denoted below

**Alaska - Designated Toxic and Hazardous Substances:** Ethylene Oxide

**California - Permissible Exposure Limits for Chemical Contaminants:** Ethylene Oxide

**Florida - Substance List:** Ethylene Oxide

**Illinois - Toxic Substance List:** Ethylene Oxide.

**Kansas - Section 302/313 List:** Ethylene Oxide.

**Michigan - Critical Materials List:** Ethylene Oxide

**Massachusetts - Substance List:** Ethylene Oxide.

**Minnesota - List of Hazardous Substances:** Ethylene Oxide

**Missouri - Employer Information/Toxic Substance List:** Ethylene Oxide.

**New Jersey - Right to Know Hazardous Substance List:** Ethylene Oxide.

**North Dakota - List of Hazardous Chemicals, Reportable Quantities:** Ethylene Oxide

**Pennsylvania - Hazardous Substance List:** Ethylene Oxide

**Rhode Island - Hazardous Substance List:** Ethylene Oxide.

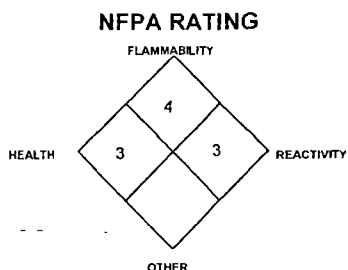
**Texas - Hazardous Substance List:** No

**West Virginia - Hazardous Substance List:** No

**Wisconsin - Toxic and Hazardous Substances:** No

**CALIFORNIA PROPOSITION 65.** Ethylene Oxide is on the California Proposition 65 lists **WARNING.** Ethylene Oxide is a substance known to the State of California to cause cancer, birth defects, and other reproductive harm.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	3
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	3
PROTECTIVE EQUIPMENT	X	
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

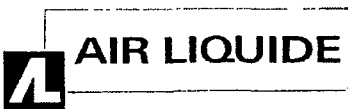
**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

P-1 "Safe Handling of Compressed Gases in Containers"  
 AV-1 "Safe Handling and Storage of Compressed Gases"  
 "Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc  
 9163 Chesapeake Drive, San Diego, CA 92123-1002  
 619/565-0302  
 Fax on Demand 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS:**

**CARBON MONOXIDE**

**SYNONYMS:** Carbonic Oxide; Carbon Oxide.

**CHEMICAL FAMILY NAME:** Non-Metal Oxide Gas

**FORMULA:** CO

**PRODUCT USE:**

Document Number: 20022

For general analytical/synthetic chemical uses.

**MANUFACTURED/SUPPLIED FOR:**

**ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand: 1-800/231-1366



## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Carbon Monoxide is a colorless, odorless, poisonous and flammable gas. Carbon Monoxide is an extremely flammable, poison gas. Carbon Monoxide is a chemical asphyxiant and may be fatal if inhaled. Exposure to Carbon Monoxide can cause nausea, dizziness, headaches, and collapse. Carbon Monoxide poses a serious fire hazard when it is accidentally released. Flame or high temperature impinging on a localized area of the cylinder of Carbon Monoxide can cause the cylinder to explode without activating the cylinder's relief devices. Provide adequate fire protection during emergency response situations.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant route of over-exposure for Carbon Monoxide is by inhalation.

**INHALATION:** Carbon monoxide is classified as a chemical asphyxiant, producing a toxic action by combining with the hemoglobin of the blood and replacing the available oxygen. Through this replacement, the body is deprived of the required oxygen, and asphyxiation occurs.

Since the affinity of carbon monoxide for hemoglobin is about 200-300 times that of oxygen, only a small amount of Carbon Monoxide will cause a toxic reaction to occur. Carbon Monoxide exposures in excess of 50 ppm will produce symptoms of poisoning if breathed for a sufficiently long time. Other effects of exposure can be summarized as follows:

<u>CONCENTRATION OF GAS</u>	<u>OBSERVED EFFECT</u>
-----------------------------	------------------------

All exposure levels:	Over-exposure to Carbon Monoxide can be indicated by the lips and fingernails turning bright red.
200 ppm:	Slight symptoms (headache, discomfort) after several hours of exposure.
400 ppm:	Headache and discomfort experienced within 2-3 hours of exposure.
1,000 -2000 ppm:	Within 30 minutes, slight palpitations of the heart occur. Within 1.5 hours, there is a tendency to stagger. Within 2 hours, there is mental confusion, headache, and nausea.
2000-2500 ppm:	Unconsciousness within 30 minutes.
>2500 ppm:	Potential for collapse and death before warning symptoms are produced.

**NOTE:** At high altitudes, individuals may be more susceptible to Carbon Monoxide over-exposures. Development of symptoms may also occur more rapidly if individuals are doing physically demanding tasks. Individuals who have heart conditions may experience a more rapid onset of symptoms. During recovery, victims can experience headaches, vision problems, and memory loss.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to Carbon Monoxide may cause the following health effects.

**ACUTE** Carbon Monoxide is a toxic gas. Symptoms of Carbon Monoxide poisoning can develop gradually, or can arise suddenly, depending on the concentration and duration of exposure. Lips and fingernails will turn bright red, which is a significant sign of Carbon Monoxide over-exposure. Other symptoms of over-exposure can include headache, shortness of breath, wheezing, dizziness, indigestion, and nausea. At high concentrations unconsciousness or death may occur. Symptoms can include blurred vision and memory loss.

**CHRONIC:** Clinical studies indicate that there is a relationship between exposure to Carbon Monoxide in specific occupations (i.e., fire-fighters, foundry workers) and an increased incidence of cardiovascular problems. Carbon Monoxide is a reproductive toxin. Refer to Section 11 of this MSDS for further information.

**TARGET ORGANS.** Respiratory system, circulatory system, cardiovascular system, reproductive system.

### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		IDLH ppm	OTHER ppm
			TWA ppm	STEL ppm	TWA ppm	STEL ppm		
Carbon Monoxide	630-08-0	> 99.0%	25	NE	50  35 (Vacated 1989 PEL)	200 ceiling (Vacated 1989 PEL)	1200	NIOSH REL. TWA = 35 STEL = 200 ceiling DFG MAKs TWA = 30 PEAK = 2•MAK, 30 min, average value DFG MAK Pregnancy Risk Classification: B
Maximum Impurities		< 1.0%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to Carbon Monoxide has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

See Section 16 for Definitions of Terms Used

NOTE (1). ALL WHMIS required information is included in appropriate sections based on the ANSI Z400 1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO CARBON MONOXIDE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant equipment should be worn. Adequate fire protection must be provided during rescue situations. Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take copy of label and MSDS to physician or other health professional with victim(s). Remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing respiratory conditions may be aggravated by over-exposure to Carbon Monoxide. Carbon Monoxide can aggravate some diseases of the cardiovascular system such as coronary artery disease and angina pectoris.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and reduce over-exposure. Provide oxygen. Hyperbaric oxygen is the most efficient antidote to Carbon Monoxide poisoning, with the optimum range being 2-2.5 atm. A special mask, or preferably, a compression chamber to utilize oxygen at these pressures is required. Avoid administering stimulant drugs.

### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable. Flammable gas.

**AUTOIGNITION TEMPERATURE:** 607°C (1125°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 12.5%

Upper (UEL): 74.2%

**FIRE EXTINGUISHING MATERIALS:** Extinguish fires of this gas by shutting-off the source of the gas. Use water spray to cool fire-exposed structures and equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** An extreme explosion hazard exists in areas in which the gas has been released but the material has not yet ignited. Carbon Monoxide decomposes to carbon and carbon dioxide between 400-700°C.

**DANGER!** Fires impinging (direct flame) on the outside surface of unprotected cylinders of Carbon Monoxide can be very dangerous. Exposure to fire could cause a catastrophic failure of the cylinder releasing the contents into a fireball and explosion of released gas. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinder. For massive fires in large areas, use unmanned hose holder or monitor nozzles, if this is not possible, withdraw from area and allow fire to burn.

## 5. FIRE-FIGHTING MEASURES (Continued)

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Static discharge may cause this gas to ignite explosively, upon a release of this gas. Due to low electrical conductivity, this substance can generate electrostatic charges during handling operations.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. If water is not available for cooling or protection of cylinder exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #115) recommends 0.5 miles.

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE.** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Eliminate any possible sources of ignition and provide maximum explosion-proof ventilation. If the gas is leaking from a cylinder or valve, contact the supplier. Adequate fire protection must be provided. Use only non-sparking tools and equipment during the response. Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus.** Locate and seal the source of the leaking gas. Protect personnel attempting the shut off with water-spray. Allow the gas to dissipate. Monitor the surrounding area for Carbon Monoxide levels. Colorimetric tubes can be used to detect the presence of Carbon Monoxide. The level of Carbon Monoxide must be at acceptable levels (see Section 2, Composition on Information and Ingredients) before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Combustible gas concentration must be below 10% of the LEL (12.5%) prior to entry. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in place or remove the cylinder to a safe area and allow the gas to be released there.

**THIS IS AN EXTREMELY FLAMMABLE, POISON GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of Carbon Monoxide could occur without any significant warning symptoms. Non-sparking tools should be used. Do not attempt to repair, adjust, or in any other way modify the cylinders containing Carbon Monoxide. If there is a malfunction or another type of operational problem, contact nearest distributor immediately.

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials that can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, elevators, building and room exits, or main aisles leading to exits. Protect cylinders against physical damage.

Cylinders should be separated from oxygen cylinders or other oxidizers by a minimum distance of 20 ft. or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Post "No Smoking or Open Flames" signs in storage or use areas. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Keep the smallest amount necessary on-site at any one-time. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand truck. Do not drag, slide, or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in place until cylinder is ready for use.

## 7. HANDLING AND STORAGE (Continued)

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it since self-ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove overly tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for flammable gas storage. Earth-ground and bond all lines and equipment associated with Carbon Monoxide. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections; DO NOT USE ADAPTERS.

THREADED: 0-3000 PSIG - CGA 350

PIN-INDEXED YOKE: Not Applicable

ULTRA HIGH INTEGRITY: 724

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (e.g., nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Carbon Monoxide detectors should be installed in or near areas where Carbon Monoxide is being used or stored (if appropriate, install automatic monitoring equipment to detect the level of oxygen and the presence of potentially explosive air-gas mixtures). Use with adequate ventilation.

Provide natural or explosion-proof ventilation adequate to ensure Carbon Monoxide does not reach its lower flammability limit of 12.5%. Local exhaust ventilation is preferred because it prevents gas dispersion into the work place by eliminating it at its source.

**RESPIRATORY PROTECTION:** Maintain Carbon Monoxide levels below the TLV (see Section 2, Composition and Information on Ingredients). Use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent U.S. State standards, and Canadian CSA Standard Z94.4-93. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following are NIOSH recommendations for Carbon Monoxide concentrations in air:

### CONCENTRATION

### RESPIRATORY EQUIPMENT

Up to 350 ppm

Supplied Air Respirator (SAR)

Up to 875 ppm

SAR operated in a continuous flow mode

Up to 1200 ppm

Gas mask with canister to protect against carbon monoxide or full-facepiece Self-Contained Breathing Apparatus (SCBA) or full-facepiece SAR.

Emergency or Planned

Entry into Unknown Concentration or IDLH Conditions: Positive pressure, full-facepiece SCBA or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA

Escape

Gas mask with canister to protect against carbon monoxide or escape-type SCBA.

**NOTE:** End of Service Life Indicator (ESLI) required for gas masks

The IDLH concentration for Carbon Monoxide is 1200 ppm

**EYE PROTECTION** Safety glasses.

**HAND PROTECTION** Note: Carbon Monoxide is mildly corrosive to nickel and iron. Natural rubber and neoprene are attacked by Carbon Monoxide. Wear gloves when handling cylinders of Carbon Monoxide.

**BODY PROTECTION:** Use body protection appropriate for task. Safety shoes are recommended when handling cylinders. Fire retardant clothing may be appropriate under some circumstances of use.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.0725 lb/ft<sup>3</sup> (1.161 kg/m<sup>3</sup>).

**BOILING POINT @ 1 atm:** -191.5°C (-312.7°F)

**FREEZING/MELTING POINT @ 1 atm:** -207°C (-340.6°F)

**SPECIFIC GRAVITY (air = 1) @ 21.1°C (70°F) and 1 atm:** 0.9676

**pH:** Not applicable.

**SOLUBILITY IN WATER vol/vol @ 0°C (32°F):** 0.035

**MOLECULAR WEIGHT:** 28.01

**EVAPORATION RATE (nBuAc = 1):** Not applicable

**EXPANSION RATIO:** Not applicable

**ODOR THRESHOLD:** Not applicable.

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 13.8

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** Gas, ambient

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless, odorless gas.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable.

**DECOMPOSITION PRODUCTS:** Carbon Monoxide burns to form carbon and carbon dioxide between 400-700°C.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong oxidizers (i.e. chlorine, bromine, pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride). Carbon Monoxide is mildly corrosive to nickel and iron (especially at high temperatures and pressures). Natural rubber and neoprene are attacked by Carbon Monoxide. Carbon Monoxide is also incompatible with the following substances: metal oxides, nickel, iron, chromium, alkali and alkaline earth metals, aluminum powder, iodine heptafluoride, sulfur, bromine, bromine trifluoride, bromine pentafluoride, chlorine dioxide, and peroxodisulfuryl difluoride.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks, and other sources of ignition. If the cylinders are exposed to extremely high temperatures, these cylinders can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following toxicity data are available for Carbon Monoxide.

TCLo (inhalation, mouse) = 65 ppm/24 hours (7-18 preg): reproductive effects

TCLo (inhalation, mouse) = 8 pph/1 hour (female 8D post) teratogenic effects

TCLo (inhalation, human) = 600 mg/m<sup>3</sup>/10 minutes

LCLo (inhalation, man) = 4000 ppm/30 minutes

TCLo (inhalation, man) = 650 ppm/45 minutes: central nervous system and blood system effects

LCLo (inhalation, human) = 5000 ppm/5 minutes

LCLo (inhalation, dog) = 4000 ppm/46 minutes

LCLo (inhalation, rabbit) = 4000 ppm

LC50 (inhalation, guinea pig) = 5718 ppm/4 hours

LCLo (inhalation, mammal) = 5000 ppm/5 minutes

LD50 (inhalation, wild bird) = 1334 ppm

**SUSPECTED CANCER AGENT:** Carbon Monoxide is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC and therefore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Contact with rapidly expanding gases can be irritating to exposed skin and eyes.

**SENSITIZATION TO THE PRODUCT:** Carbon Monoxide is not a skin or respiratory sensitizer.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Carbon Monoxide on the human reproductive system.

Mutagenicity: Carbon Monoxide is not expected to cause mutagenic effects in humans. In one available animal study, Carbon Monoxide increased chromosomal damage in the blood of mice.

Embryotoxicity: Carbon Monoxide has not been reported to cause embryotoxic effects.

Teratogenicity: Carbon Monoxide can cause teratogenic effects in humans. Severe exposure to Carbon Monoxide during pregnancy has caused adverse effects and the death of the fetus. In general, maternal symptoms are an indicator of the potential risk to the fetus since Carbon Monoxide is toxic to the mother before it is toxic to the fetus.

## 11. TOXICOLOGICAL INFORMATION (Continued)

**Reproductive Toxicity:** Carbon Monoxide is not expected to cause adverse reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Biological Exposure Indices (BEIs) are applicable for Carbon Monoxide, as follows:

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
CARBON MONOXIDE <ul style="list-style-type: none"><li>• Carboxyhemoglobin in blood</li><li>• Carbon monoxide in end-exhaled air</li></ul>	<ul style="list-style-type: none"><li>• End of shift</li><li>• End of shift</li></ul>	<ul style="list-style-type: none"><li>• 3.5% of hemoglobin</li><li>• 20 ppm</li></ul>

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** Carbon Monoxide occurs naturally in the atmosphere. The gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Carbon Monoxide can be deadly to exposed animal life, producing symptoms similar to those experienced by humans. This gas may also be harmful to plant life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available regarding Carbon Monoxide's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:** Carbon monoxide, compressed

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.3 (Poison Gas)

**UN IDENTIFICATION NUMBER:** UN 1016

**PACKING GROUP:** Not applicable

**DOT LABEL(S) REQUIRED:** Poison Gas, Flammable Gas

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000):** 119

**SPECIAL PROVISION:** Carbon Monoxide is poisonous by inhalation. Shipments must be properly described as inhalation hazards. ZONE D.

**MARINE POLLUTANT:** Carbon Monoxide is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** This material is considered as dangerous goods, per regulations of Transport Canada. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

### ADDITIONAL UNITED STATES REGULATIONS:

**U.S. SARA REPORTING REQUIREMENTS:** Carbon Monoxide is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**U.S. SARA Threshold Planning Quantity:** Not applicable

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable

**CANADIAN DSL INVENTORY STATUS:** Carbon Monoxide is listed on the DSL Inventory.

**U.S. TSCA INVENTORY STATUS:** Carbon Monoxide is listed on the TSCA Inventory

### **OTHER U.S. FEDERAL REGULATIONS.**

- Carbon Monoxide is subject to the requirements of CFR 29 1910 1000 Carbon Monoxide is listed on Table Z 1.
- Carbon Monoxide does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82)
- Depending on specific operations involving the use of Carbon Monoxide, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Carbon Monoxide is not listed in Appendix A of this regulation, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Carbon Monoxide is listed under Table 3 as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases as a flammable substance

**U.S. STATE REGULATORY INFORMATION:** Carbon Monoxide is covered under specific State regulations, as denoted below:

**Alaska - Designated Toxic and Hazardous Substances:** Carbon Monoxide

**California - Permissible Exposure Limits for Chemical Contaminants:** Carbon Monoxide

**Florida - Substance List:** Carbon Monoxide

**Illinois - Toxic Substance List:** Carbon Monoxide

**Kansas - Section 302/313 List:** None

**Michigan - Critical Materials Register:** No.

**Massachusetts - Substance List:** Carbon Monoxide.

**Minnesota - List of Hazardous Substances:** Carbon Monoxide

**Missouri - Employer Information/Toxic Substance List:** Carbon Monoxide

**New Jersey - Right to Know Hazardous Substance List:** Carbon Monoxide

**North Dakota - List of Hazardous Chemicals, Reportable Quantities:** No

**Pennsylvania - Hazardous Substance List:** Carbon Monoxide

**Rhode Island - Hazardous Substance List:** Carbon Monoxide

**Texas - Hazardous Substance List:** No

**West Virginia - Hazardous Substance List:** None

**Wisconsin - Toxic and Hazardous Substances:** No

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** Carbon Monoxide is on the California Proposition 65 lists **WARNING:** Carbon Monoxide is a chemical known to the State of California to cause birth defects or other reproductive harm

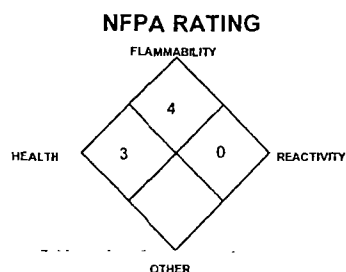
### **ADDITIONAL CANADIAN REGULATIONS:**

**CANADIAN DSL/NDL INVENTORY STATUS:** Carbon Monoxide is on the DSL Inventory.

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** Carbon Monoxide is not on the CEPA Priorities Substances Lists.

**CANADIAN WHMIS REGULATIONS:** Carbon Monoxide is categorized as a Controlled Product, Hazard Classes A, B1, D1A, and D2A as per the Controlled Product Regulations.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	1
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT	B	
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death

Further information on Carbon Monoxide can be found in the following pamphlets published by: Compressed Gas Association Inc (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone (703) 788-2700.

P-1	"Safe Handling of Compressed Gases in Containers"
SB-2	"Oxygen Deficient Atmospheres"
AV-1	"Safe Handling and Storage of Compressed Gases"
	"Handbook of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
858/565-0302

Fax on Demand: 1-800/231-1366



This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to Carbon Monoxide. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If Carbon Monoxide is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.





**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT AND COMPANY INFORMATION**

**CHEMICAL NAME; CLASS:**

**CARBON DIOXIDE**

**SYNONYMS:** Carbon Anhydride; Carbonic Acid Gas; Carbonic Anhydride; Carbon Dioxide USP;  
Carbon Dioxide, Refrigerated Liquid; Dry Ice

**CHEMICAL FAMILY NAME:** Acid Anhydride

**FORMULA:** CO<sub>2</sub>

**PRODUCT USE:**

Document Number: 10040

For carbonation, chilling and freezing, medical,  
inerting, pH control, fire protection, and  
general analytical/synthetic  
chemical uses

**MANUFACTURED/SUPPLIED FOR:**

**ADDRESS:**

**EMERGENCY PHONE:**

**BUSINESS PHONE:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

CHEMTREC: 1-800-424-9300

General MSDS Information 1-713/896-2896

Fax on Demand: 1-800/231-1366

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW** Carbon Dioxide is a colorless, odorless gas, or a colorless, odorless liquid in a high-pressure container. Over-exposure to Carbon Dioxide can increase respiration and heart rate, possibly resulting in circulatory insufficiency, which may lead to coma and death. At concentrations between 2 and 10%, Carbon Dioxide can cause nausea, dizziness, headache, mental confusion, increased blood pressure and respiratory rate. Exposure to Carbon Dioxide can also cause asphyxiation, through displacement of oxygen. If the gas concentration reaches 10% or more, suffocation can occur within minutes. The liquid will rapidly boil to the gas at standard temperatures and pressures. Contact with the cold gas can cause freezing of exposed tissue. Moisture in the air could lead to the formation of carbonic acid which can be irritating to the eyes. All forms of Carbon Dioxide are non-combustible.

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE.** The most significant routes of over-exposure for this gas are by inhalation, and skin or eye contact. Symptoms of such exposure are as follows:

**INHALATION** Carbon Dioxide is an asphyxiant and a powerful cerebral vasodilator. If the concentration of Carbon Dioxide reaches 10% or more, suffocation can occur within minutes. At concentrations between 2 and 10%, Carbon Dioxide can cause nausea, dizziness, headache, mental confusion, increased blood pressure and respiratory rate. Carbon Dioxide initially stimulates respiration and then causes respiratory depression. High concentrations result in narcosis. Repeated inhalation of low concentrations (3-5%) have no known permanent harmful effects. Symptoms in humans are as follows:

<u>CONCENTRATION</u>	<u>EFFECT</u>
1%	Slight increase in breathing rate
2%	Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness.
3%	Breathing increases to twice normal rate and becomes labored. Weak narcotic effect.
4-5%	Impaired hearing, headache, increase in blood pressure and pulse rate.
5-10%	Breathing increases to approximately four times normal rate, symptoms of intoxication become evident and slight choking may be felt.
10-15%	Characteristic sharp odor noticeable. Very labored breathing, headache, visual impairment and ringing in the ears. Judgment may be impaired, followed within minutes by loss of consciousness.
50-100%	Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation.

High concentrations of this gas can also cause an oxygen-deficient environment. However, the asphyxiating properties of Carbon Dioxide will be reached before oxygen-deficiency is a factor.

**CONTACT WITH SKIN or EYES:** Contact of the cold gas with the skin can lead to frostbite or dermatitis (red, cracked, irritated skin), depending upon concentration and duration of exposure. Contact of the cold gas, or solid dry ice with the eyes can cause pain, redness, burns, and severe exposure could cause blindness.

**OTHER POTENTIAL HEALTH EFFECTS:** Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with cold gas can quickly subside. Moisture in the air could lead to the formation of carbonic acid, which can be irritating to the eyes.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms** Over-exposure to Carbon Dioxide may cause the following health effects:

**ACUTE** Carbon Dioxide is an asphyxiant and a powerful cerebral vasodilator. Inhaling large quantities causes rapid circulatory insufficiency, which can lead to coma or death. At low concentrations, inhalation of Carbon Dioxide can cause nausea, dizziness, visual disturbances, shaking, headache, mental confusion, sweating, increased heartbeat, and elevated blood pressure and respiratory rate. High concentrations of the gas in air may cause eye irritation. Contact with the eyes can cause damage to the retinal ganglion cells.

**CHRONIC.** There are currently no known adverse health effects associated with chronic exposure to this gas.

**TARGET ORGANS** ACUTE: Respiratory system, central nervous system, eyes. CHRONIC: None known.

### 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		NIOSH	OTHER
			TWA ppm	STEL ppm	TWA ppm	STEL ppm	IDLH ppm	ppm
Carbon Dioxide	124-38-9	> 99.5%	5000	30,000	5000 10,000 (Vacated 1989 PEL)	30,000 (Vacated 1989 PEL)	40,000	NIOSH REL. TWA = 5000 STEL = 30,000 (ceiling) DFG-MAK TWA = 5000 PEAK = 2•MAK, 60 min momentary value
Maximum Impurities		< 0.5%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4)					

This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.

NE = Not Established

See Section 16 for Definitions of Terms Used

NOTE (1) ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus equipment should be worn.**

Remove victim(s) to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

**SKIN EXPOSURE:** Remove any clothing that may restrict circulation to any frozen area. Do not rub frozen parts as tissue damage may occur. As soon as practicable, place any affected area in warm water bath which has a temperature that does not exceed 105°F (40°C). NEVER USE HOT WATER. NEVER USE DRY HEAT. If area of frostbite is extensive, remove clothing while showering with warm water. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If irritation of the eye develops after exposure to gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing respiratory conditions may be aggravated by over-exposure to this product.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and reduce over-exposure.

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): Not applicable

Upper (UEL): Not applicable

**FIRE EXTINGUISHING MATERIALS** Carbon Dioxide is commonly used as an extinguishing agent for Class B and Class C fires. Use extinguishing media appropriate for the surrounding fire

**UNUSUAL FIRE AND EXPLOSION HAZARDS** Carbon Dioxide does not burn, however, containers, when involved in fire, may rupture or burst in the heat of the fire. Dusts of various reactive metals (e.g., magnesium, zircon, titanium alloys), are readily ignited and explode in the presence of Carbon Dioxide. In the presence of moisture, cesium oxide ignites on contact with Carbon Dioxide. Metal acetylides or hydrides will also ignite or explode

Liquid Carbon Dioxide will vaporize rapidly when accidentally released, forming an oxygen-deficient vapor cloud. Additionally, if large concentrations of Carbon Dioxide gas are present, the water vapor in the surrounding air will condense, creating a dense fog. Evacuate the surrounding area; visibility may be obscured in such a vapor cloud making it difficult to find fire exits or equipment. Pressure in a high pressure container can build-up due to heat and it may rupture if pressure relief devices should fail to function. Contact with cold, gaseous or solid Carbon Dioxide may cause frostbite.

Explosion Sensitivity to Mechanical Impact Not sensitive

Explosion Sensitivity to Static Discharge: Not sensitive

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment

## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Minimum Personal Protective Equipment should be **Level B: protective clothing, leather or thermally insulating gloves and Self-Contained Breathing Apparatus**. Locate and seal the source of the leaking gas. Allow the gas to dissipate. Monitor the surrounding area for Carbon Dioxide and oxygen levels. The level of Carbon Dioxide must be below 3%, and the atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus

**RESPONSE TO PRESSURIZED-LIQUID RELEASE:** Clear the affected area. After the gas is formed, follow the instructions provided above. If the area must be entered by emergency personnel, SCBA, leather or insulated gloves, and safety shoes must be worn

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms

**STORAGE AND HANDLING PRACTICES.** Cylinders should be stored upright and be firmly secured to prevent falling or being knocked-over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Isolate from other non-compatible chemicals (refer to Section 10, Stability and Reactivity).

Storage containers and equipment should not be located in sub-surface or enclosed areas, unless engineered to maintain a concentration of Carbon Dioxide below the TLV (TLV = 5000 ppm) in the event of a release. Relief valves should be vented to a well-ventilated external location. Consider installation of leak detection and alarm for storage and use areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief valves and cylinders (continued on following page)

Full and empty cylinders should be segregated. Use a first-in, first-out inventory systems to prevent full containers from being stored for long periods of time

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used

## 7. HANDLING AND STORAGE (Continued)

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Leak-check system with leak detection solution. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage the valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc, on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close main cylinder valve. Replace valve protection cap. Mark empty cylinders "EMPTY".

### **SPECIAL PRECAUTIONS FOR HANDLING PRESSURIZED CONTAINERS OF LIQUID CARBON DIOXIDE**

Cold liquids can present significant safety hazards. Never allow any unprotected part of the body to touch uninsulated pipes or vessels which contain cold fluids. The extremely cold metal of the container will cause moist flesh to stick fast and tear when one attempts to withdraw from it. The following rules are applicable to work situations in which liquid containers are being used. Check all hoses and transfer equipment before filling them with the liquid. Replace any worn or cut hoses prior to use. Liquid Carbon Dioxide is extremely cold and is under pressure. A leak will result in the formation of "Dry Ice" particles which will be forcibly ejected from the system, possibly injuring the operator. A complete hose failure can result in a large release of Carbon Dioxide and violent movement of the hose and associated equipment, which may cause severe injury or death. Special care must be taken when depressurizing and disconnecting hoses. Releasing the contents of a liquid-filled line to atmospheric pressure may result in the formation of a solid dry ice plug in the line. This plug will prevent further removal of the liquid behind the plug, resulting in either an unexpected, rapid release of Carbon Dioxide as the line warms, or the catastrophic failure of the line as the liquid warms behind the plug. Sufficient vapor pressure must be applied and maintained behind the liquid before opening a discharge valve. This action will prevent the depressurization of the liquid to the point of solid formation before it exits the line.

High-pressure containers for liquid product are equipped with pressure relief devices to control internal pressure. Under normal conditions, these containers will periodically vent small amounts of product. Some metals such as carbon steel may become brittle at low temperatures and will easily fracture. Prevent entrapment of liquid in closed systems or piping without pressure relief devices.

**NOTE:** Use only DOT or ASME-approved code containers. Close valve after each use and when empty.

**STANDARD CYLINDER VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS.

<u>THREADED:</u>	CGA 320
<u>PIN-INDEXED YOKE</u>	CGA 940 (Medical Use)
<u>ULTRA HIGH INTEGRITY:</u>	716

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT.** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Carbon Dioxide accumulates in low-lying areas with limited air movement. Natural or mechanical ventilation should be available in the worker's breathing zone to prevent levels of Carbon Dioxide above exposure limits (see Section 2, Composition and Information on Ingredients). Local exhaust ventilation is preferred, because it prevents dispersion of this gas into the work place by eliminating it at its source. Areas of Carbon Dioxide use should be engineered to remove vapor from the lowest possible level and exhaust vapor to a well-ventilated area or to the outside. Carbon Dioxide levels should be monitored to assure levels are maintained below the TLV. If appropriate, install automatic monitoring equipment to detect the levels of Carbon Dioxide and of oxygen.

**RESPIRATORY PROTECTION:** Maintain Carbon Dioxide levels below those listed in Section 2 (Composition and Information on Ingredients) and oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if Carbon Dioxide levels are above the IDLH (40,000 ppm) or during emergency response to a release of this product. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29

CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

Protection Standard (1910.134-1998). Respiratory selection guidelines from NIOSH for Carbon Dioxide are provided below for information

### **CONCENTRATION**

Up to 40,000 ppm

### **RESPIRATORY EQUIPMENT**

Supplied Air Respirator (SAR); or full-facepiece Self-Contained Breathing Apparatus (SCBA).

Emergency or Planned Entry Into Unknown Concentrations or IDLH Conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape

Escape-type SCBA

### **NOTE:**

The IDLH concentration for Carbon Dioxide is 40,000 ppm.

**EYE PROTECTION** Safety glasses. Use faceshields when handling Liquid Carbon Dioxide in high pressure containers. If necessary, refer to U.S. OSHA 29 CFR 1910.133, or Canadian Standards

**HAND PROTECTION** Wear leather or thermally insulated gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada

**BODY PROTECTION.** Use body protection appropriate for task. Safety shoes are recommended when handling cylinders. When handling the liquid in high pressure containers, long sleeve shirts and trousers are recommended. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR.

**HEARING PROTECTION:** Discharges of Liquid Carbon Dioxide and of the vapor can produce noise levels requiring hearing protection

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 21.1°C (70°F) and 1 atm:** 0.1144 lb/ft<sup>3</sup> (1.833 kg/m<sup>3</sup>)

**LIQUID DENSITY @ 21.1°C (70°F) and 838 psig (5778 kPa):** 47.35 lb/ft<sup>3</sup> (761.3 kg/m<sup>3</sup>)

**FREEZING/MELTING POINT:** (sublimation temperature) -78.5°C (-109.3°F)

**TRIPLE POINT:** -55.6°C (-69.9°F) @ 60.4 psig (416 kPa)

**pH:** 3.7 at 1 atm (form carbonic acid)

**SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C):** 1.522

**MOLECULAR WEIGHT:** 44.01

**ODOR THRESHOLD:** Odorless.

**EXPANSION RATIO:** Not applicable

**EVAPORATION RATE (nBuAc = 1):** Not applicable

**SPECIFIC VOLUME (ft<sup>3</sup>/lb):** 8.76

**VAPOR PRESSURE @ 21.1°C (70°F) psig:** 838 psig (5778 kPa)

**SUBLIMATION POINT:** -78.5°C (-109.3°F)

**SOLUBILITY IN WATER vol/vol 20°C (68°F) and 1 atm:** 0.90

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable

**APPEARANCE AND COLOR:** This product is a colorless, odorless gas, or colorless, odorless, volatile liquid stored under high pressure. As this gas is slightly acidic, some individuals may notice a slightly pungent odor and biting taste.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no unusual warning properties associated with a release of this product, except the potential of a vapor cloud in the event of a large release.

## 10. STABILITY and REACTIVITY

**STABILITY:** Normally stable

**DECOMPOSITION PRODUCTS:** Carbon Dioxide will produce Carbon Monoxide and Oxygen when heated to temperatures above 3000°F (1648°C).

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Carbon Dioxide will ignite and explode when heated with powdered aluminum, beryllium, cerium alloys, chromium, magnesium-aluminum alloys, manganese, thorium, titanium, and zirconium. In the presence of moisture, Carbon Dioxide will ignite with cesium oxide. Metal acetylides will also ignite and explode on contact with Carbon Dioxide. Carbon Dioxide will react with alkaline materials to form carbonates and bicarbonates.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Avoid exposing cylinders or bulk storage containers of Carbon Dioxide to extremely high temperatures, which could cause the cylinders or storage containers to rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** Carbon Dioxide gas is an asphyxiant gas, which has physiological effects at high concentrations. High concentrations can also result in narcosis. The following toxicological information is available for Carbon Dioxide.

LCLo (Inhalation-Human) 9 pph/5 minutes  
LCLo (Inhalation-Mammal-species unspecified) 90000 ppm/5 minutes

TCLo (Inhalation-Rat) 10000 ppm/24 hours/days-continuous Blood other changes

TCLo (Inhalation-Rat) 6 pph/24 hours female 10 day(s) after conception Reproductive Specific Developmental Abnormalities. musculoskeletal system, cardiovascular (circulatory) system, respiratory system

TCLo (Inhalation-Rabbit) 27,000 ppm/24 hours/30 days-continuous Behavioral somnolence (general depressed activity)

TCLo (Inhalation-Rat) 6 pph/24 hours female 10 day(s) after conception Reproductive Effects on Newborn growth statistics (e g %, reduced weight gain)

TCLo (Inhalation-Rabbit) 13 pph/4 hours female 9-12 day(s) after conception Reproductive Specific Developmental Abnormalities musculoskeletal system

TCLo (Inhalation-Mouse) 55 pph/2 hours. male 3 day(s) pre-mating. Reproductive Paternal Effects. spermatogenesis (incl genetic material, sperm morphology, motility, and count)

TCLo (Inhalation-Mouse) 55 pph/4 hours. male 6 day(s) pre-mating Reproductive Fertility male fertility index (e g # males impregnating females per # males exposed to fertile nonpregnant females)

TCLo (Inhalation-Mouse) 2 pph/8 hours female 10 day(s) after conception Reproductive Fertility post-implantation mortality (e g dead and/or resorbed implants per total number of implants), Specific Developmental Abnormalities. musculoskeletal system

**SUSPECTED CANCER AGENT:** Carbon Dioxide is not found on the following lists FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** Contact with rapidly expanding gases can cause frostbite and damage to exposed skin and eyes.

**SENSITIZATION OF PRODUCT:** Carbon Dioxide is not a skin or respiratory sensitizer.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of Carbon Dioxide on the human reproductive system.

Mutagenicity This product is not expected to cause mutagenic effects in humans

Embryotoxicity This product has not been reported to cause embryotoxic effects.

Teratogenicity This product is not expected to cause teratogenic effects in humans Clinical studies involving test animals exposed to high concentrations of Carbon Dioxide indicate teratogenic effects

Reproductive Toxicity This product is not expected to cause adverse reproductive effects in humans Clinical studies involving test animals exposed to high concentrations of Carbon Dioxide indicate reproductive effects

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) have not been determined for this compound.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** Carbon Dioxide occurs naturally in the atmosphere. The gas will be dissipated rapidly in well-ventilated areas.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** No adverse effect is anticipated to occur to animal or plant-life, except for frost produced in the presence of rapidly expanding gases.

**EFFECT OF CHEMICAL ON AQUATIC LIFE.** No evidence is currently available on this product's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL.** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide Do not dispose of locally.

For emergency disposal, secure the cylinder and slowly discharge the gas to the atmosphere in a well-ventilated area or outdoors

## 14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

	<u>FOR GAS</u>	<u>FOR LIQUID</u>
PROPER SHIPPING NAME:	Carbon dioxide	Carbon Dioxide, refrigerated liquid
HAZARD CLASS NUMBER and DESCRIPTION:	2.2 (Non-Flammable Gas)	2.2 (Non-Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1013	UN 2187
PACKING GROUP:	Not applicable.	Not applicable.
DOT LABEL(S) REQUIRED	Non-Flammable Gas	Non-Flammable Gas
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2006):	120	120
MARINE POLLUTANT:	Carbon Dioxide is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).	
SPECIAL SHIPPING INFORMATION:	Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged	
NOTE:	Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b))	
TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:	This material is considered as dangerous goods, per regulations of Transport Canada. Use the above U.S. DOT information for the preparation of Canadian Shipments.	

## 15. REGULATORY INFORMATION

### ADDITIONAL U.S. REGULATIONS:

**U.S. SARA REPORTING REQUIREMENTS:** Carbon Dioxide is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for any component of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) therefore applies, per 40 CFR 370.20.

**U.S. TSCA INVENTORY STATUS:** Carbon Dioxide is listed on the TSCA Inventory.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

### OTHER U.S. FEDERAL REGULATIONS:

- Generally recognized as safe (GRAS) as a direct human food ingredient when used as a leavening agent, processing aid, propellant, aerating agent and gas.
- Carbon Dioxide USP is regulated by the FDA as a prescription drug
- Carbon Dioxide is subject to the reporting requirements of CFR 29 1910.1000. Carbon Dioxide is listed on Table Z 1.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Carbon Dioxide is not listed in Appendix A.
- Carbon Dioxide does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Carbon Dioxide is not listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical

**U.S. STATE REGULATORY INFORMATION:** Carbon Dioxide is covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: Carbon Dioxide.

California - Permissible Exposure Limits for Chemical Contaminants: Carbon Dioxide

Florida - Substance List: Carbon Dioxide.

Illinois - Toxic Substance List: Carbon Dioxide

Kansas - Section 302/313 List: No

Massachusetts - Substance List: Carbon Dioxide

Michigan - Critical Materials List: No

Minnesota - List of Hazardous Substances: Carbon Dioxide

Missouri - Employer Information/Toxic Substance List: Carbon Dioxide

New Jersey - Right to Know Hazardous Substance List: Carbon Dioxide

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Carbon Dioxide

Rhode Island - Hazardous Substance List: Carbon Dioxide

Texas - Hazardous Substance List: No.

West Virginia - Hazardous Substance List: Carbon Dioxide

Wisconsin - Toxic and Hazardous Substances: Carbon Dioxide.

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** Carbon Dioxide is not on the California Proposition 65 lists

### OTHER CANADIAN REGULATIONS:

**CANADIAN DSL/NDL INVENTORY STATUS:** Carbon Dioxide is listed on the DSL Inventory





## 15. REGULATORY INFORMATION (Continued)

**CANADIAN WHMIS REGULATIONS:** Carbon Dioxide is categorized as a Controlled Product, Hazard Class A as per the Controlled Product Regulations.

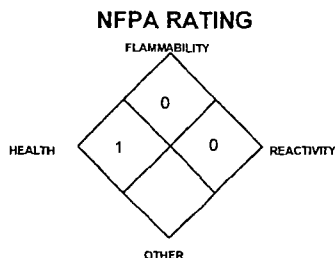
**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** Carbon Dioxide is not on the CEPA Priorities Substances Lists

## 16. OTHER INFORMATION



### CARBON DIOXIDE GAS

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH		(BLUE)	1
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT		B	
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

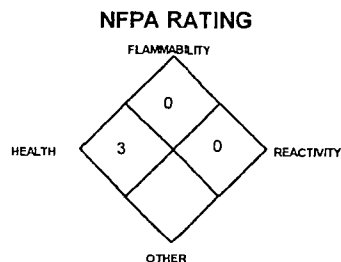
### CARBON DIOXIDE GAS



### CARBON DIOXIDE, LIQUEFIED

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH		(BLUE)	3
FLAMMABILITY		(RED)	0
REACTIVITY		(YELLOW)	0
PROTECTIVE EQUIPMENT		X	
EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8
For routine industrial applications			

### CARBON DIOXIDE, LIQUEFIED



**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

## 16. OTHER INFORMATION (Continued)

Further information about Carbon Dioxide can be found in the following pamphlets published by Compressed Gas Association Inc (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 Telephone: (703) 788-2700.

G-6	"Carbon Dioxide"
G-6.1	"Standard for Low Pressure Carbon Dioxide Systems at Customer Sites"
G-6.2	"Commodity Specification for Carbon Dioxide"
G-6.3	"Carbon Dioxide Cylinder Filling and Handling Procedures"
G-6.5	"Standard for Small Stationary Carbon Dioxide Systems"
G-6.6	"Standard for Elastomer-Type Bulk Transfer Hose"
P-1	"Safe Handling of Compressed Gases in Containers"
P-7	"Standard for the Re-Qualification of Cargo Tank Hose"
P-14	"Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres"
SB-2	"Oxygen Deficient Atmospheres"
AV-1	"Safe Handling and Storage of Compressed Gases"
AV-7	"Characteristics and Safe Handling of Carbon Dioxide"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
PO Box 3519, La Mesa, CA 91944-3519  
619/670-0609

Fax on Demand 1-800/231-1366



**AIR LIQUIDE**

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.



**AIR LIQUIDE**

# **MATERIAL SAFETY DATA SHEET**

*Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards*

## **1. PRODUCT IDENTIFICATION**

**CHEMICAL NAME; CLASS:**

**ACETYLENE**

**SYNONYMS:** Ethine; Ethyne

**CHEMICAL FAMILY:** Alkane (hydrocarbon)

**FORMULA:** C<sub>2</sub>H<sub>2</sub>

**PRODUCT USE:**

Document Number: 10002

For chemical synthesis, manufacture of carbon black, welding, cutting, and for general analytical or synthetic chemical uses.

**MANUFACTURED/SUPPLIED FOR:  
ADDRESS:**



**AIR LIQUIDE**

2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information: 1-713/896-2896

Fax on Demand: 1-800/231-1366

## **2. HAZARD IDENTIFICATION**

**EMERGENCY OVERVIEW** This product is a colorless, flammable gas, with a garlic-like odor, that is dissolved in acetone. Acetylene poses an extreme fire hazard when accidentally released. The main health hazard associated with a release of Acetylene is asphyxiation by displacement of oxygen. Acetylene is lighter than air, and may spread long distances. Distant ignition and flashback are possible. Flame or high temperature impinging on a localized area of the cylinder of this product can cause the cylinder to rupture violently without activating the cylinder's relief devices. Acetylene is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Provide adequate fire protection during emergency response situations. Acetylene may decompose explosively at elevated temperatures and pressures.

## 2. HAZARD IDENTIFICATION (Continued)

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant route of over-exposure for this product is by inhalation.

**INHALATION** Acetylene, at concentration below the LEL of 2.5% (25000 ppm), is essentially non-toxic. At higher concentrations, Acetylene has anesthetic effects. Symptoms of over-exposure to such high concentrations may include drowsiness, dizziness, and a general feeling of weakness.

High concentrations of this gas can cause an oxygen-deficient environment. It should be noted that before suffocation could occur, the lower flammability limit of Acetylene in air would be exceeded, possibly causing an oxygen-deficient and explosive atmosphere. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows.

### **CONCENTRATION**

12-16% Oxygen

10-14% Oxygen

6-10% Oxygen

Below 6%

### **SYMPTOM OF EXPOSURE**

Breathing and pulse rate increased, muscular coordination slightly disturbed.

Emotional upset, abnormal fatigue, disturbed respiration.

Nausea and vomiting, collapse or loss of consciousness.

Convulsive movements, possible respiratory collapse, and death.

**OTHER POTENTIAL HEALTH EFFECTS:** Acetylene is generally non-irritating to the skin and eyes. Acetylene is dissolved in a solvent, usually acetone. Any skin or eye contact with the solvent may be slightly irritating to contaminated skin or eyes.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Over-exposure to Acetylene may cause the following health effects:

**ACUTE** The most significant hazard associated with this product is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, and, at high concentrations, unconsciousness or death may occur. The skin of a victim of over-exposure may have a blue color.

**CHRONIC:** There are currently no known adverse health effects associated with chronic exposure to Acetylene.

**TARGET ORGANS:** Respiratory system, central nervous system

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Acetylene	74-86-2	>98-99.6%	Simple Asphyxiant	NE	NE	NE	NE	NIOSH REL. 2500 ppm, ceiling
Maximum Impurities		<2-4%	None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.					

**This material is classified as hazardous under OSHA regulations in the United States and the WHMIS in Canada.**

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.

#### 4. FIRST-AID MEASURES

**RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant clothing should be worn. Adequate fire protection must be provided during rescue situation.**

Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary.

**SKIN and EYE EXPOSURE** If contact is made with the solvent, flush area for 15 minutes with water.

Victim(s) must be taken for medical attention. Take copy of label and MSDS to physician or other health professional with victim(s).

#### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable to a flammable gas.

**AUTOIGNITION TEMPERATURE @ 1 atmosphere:** 305 °C (581°F)

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): 2.5%

Upper (UEL): 82.0%

**FIRE EXTINGUISHING MATERIALS:** Extinguish fires of this gas by shutting-off the source of the gas, if possible. Use water spray to cool fire-exposed cylinders, structures and equipment.

**UNUSUAL FIRE AND EXPLOSION HAZARDS** When involved in a fire, this material may decompose and produce toxic gases including carbon monoxide and carbon dioxide. Acetylene is extremely flammable and can readily form explosive mixtures with air over a very wide range. An explosion hazard exists in confined spaces when the gas is released. An explosive decomposition of pure acetylene can occur under certain conditions of elevated pressure, temperature and container size.

**DANGER!** Fires impinging (direct flame) on the outside surface of cylinders of Acetylene can be very dangerous. Direct flame exposure on the cylinder wall can cause a violent rupture of the cylinder, releasing the contents into a massive fireball and explosion of released Acetylene. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the cylinders. For fires in large areas, use unmanned hose holder or monitor nozzles to apply water on those cylinders involved as well as surrounding cylinders to keep them cool. If this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive

Explosion Sensitivity to Static Discharge: Static discharge may cause this product to ignite explosively, if released.

**SPECIAL FIRE-FIGHTING PROCEDURES:** The best fire-fighting technique may be simply to let the burning gas escape from the pressurized cylinder or piping system. If possible, stop the leak before extinguishing fire. If the fire is extinguished before the leak is sealed, the still-leaking Acetylene could explosively re-ignite without warning and cause extensive damage, injury, or fatality. In this case, increase ventilation (in enclosed areas) to prevent flammable or explosive mixture formation. Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for cylinder rupture, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of cylinders and exposures, evacuate the area. The North American Emergency Response Guidebook (Guide #116) recommends 0.5 miles.

#### 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE** Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area, protect people, and respond with trained personnel. Adequate fire protection must be provided. Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves and Self-Contained Breathing Apparatus**. Use only non-sparking tools and equipment.

If possible, close the Acetylene cylinder valve to stop the leak. If this does not stop the release (or if it is not possible to safely reach the cylinder valve), allow the gas to release in-place, or move the cylinder to a safe area, away from ignition sources. Extreme caution should be used when moving a leaking cylinder of Acetylene.

Monitor the surrounding area for oxygen and combustible gas levels. Combustible gas concentrations must be below 10% of the LEL (2.5%), and the oxygen content above 19.5% before entry of personnel into the area, without Self-Contained Breathing Apparatus and protective equipment.

## 6. ACCIDENTAL RELEASE MEASURES (Continued)

**THIS IS AN EXTREMELY FLAMMABLE GAS.** Protection of all personnel and the area must be maintained.

## 7. HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright (with valve-protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52 °C (125 °F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Post "No Smoking or Open Flames" signs in storage or use areas.

In the United States, cylinders of Acetylene stored inside buildings at locations of use must be limited to a total capacity of 2500 ft<sup>3</sup> (70m<sup>3</sup>). In Canada, the limit is for a total capacity of 2160 ft<sup>3</sup> (60m<sup>3</sup>) in non-sprinklered buildings and 6130 ft<sup>3</sup> (170 m<sup>3</sup>) in buildings with sprinkler systems. After these quantities are exceeded, a special room must be built for the storage of Acetylene. The installation of leak detection and alarms for storage areas of Acetylene must be considered.

Storage areas must meet national electrical codes for Class 1 Hazardous Areas. Have appropriate extinguishing equipment in the storage area (i.e. sprinkler system, portable fire extinguishers).

Cylinders should be separated from oxygen cylinders, or other oxidizers, by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 0.5 hours. Isolate from other incompatible chemicals (refer to Section 10, Stability and Reactivity).

It is important to note that Acetylene, in its free state, under pressure, may decompose violently. The higher the pressure, the smaller the initial force necessary to cause a reaction. Therefore, **never use Acetylene outside the cylinder at pressures in excess of 15 psig.** If pressures exceeding this limit are utilized, special explosion and fire safety precautions must be implemented.

Keep the smallest amount on-site as is necessary. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Use non-sparking ventilation systems, approved vapor-tight or explosion-proof equipment, and appropriate electrical systems. Electrical equipment used in gas-handling operations, or located in storage areas, should be non-sparking or explosion proof. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used:

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Use piping and equipment adequately designed to withstand pressures to be encountered. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Do not "crack" valve open before connecting it, since ignition may occur. Leak check system with leak detection solution, never with flame. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings, doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electric circuit.

**After Use:** Close valve after each use and when empty. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT cylinders designed for acetylene storage. Earth-ground and bond all piping systems and equipment associated with this product.

For welding and brazing operations, refer to ANSI Z-49.1 "Safety in Welding and Cutting" and OSHA safety regulations for welding, cutting, and brazing (29 CFR 1910.252). In addition, see the National Fire Protection Association (NFPA) publication 51 *Oxygen Fuel Gas Welding and Cutting*.

## 7. HANDLING AND STORAGE (Continued)

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper connections, DO NOT USE ADAPTERS:

<u>THREADED:</u>	Over 50 cubic feet (1 39 m <sup>3</sup> )	CGA 510
	Alternate.	CGA 300
	Between 35 and 75 cubic feet (2 08 m <sup>3</sup> )	CGA 520
	Approximately 10 cubic feet (280 L)	CGA 200
	Canada - Over 50 cubic feet	CGA 415

PIN-INDEXED YOKE: Not Applicable

ULTRA HIGH INTEGRITY: Not Applicable.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT** Follow practices indicated in Section 6 (Accidental Release Measures) Make certain application equipment is locked and tagged-out safely. Purge Acetylene-handling equipment with inert gas (i.e. nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS** Use with adequate ventilation. Provide natural or explosion-proof ventilation adequate to ensure Acetylene does not reach its lower flammability limit of 2.5% Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of Acetylene and the presence of potentially explosive air-gas mixtures.

**RESPIRATORY PROTECTION** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% (air-purifying respirators will not function) or during emergency response to a release of this product During an emergency situation, before entering the area, check for flammable gas level as well as oxygen-deficient atmospheres. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards.

**EYE PROTECTION:** Safety glasses.

**HAND PROTECTION** Wear leather gloves when handling cylinders of this product. Otherwise, wear glove protection appropriate to the specific operation for which this product is used. Wear Solvex or neoprene gloves if operations could lead to a potential exposure to the solvent

**BODY PROTECTION:** Use body protection appropriate for task Cotton clothing is recommended for use to prevent static electric build-up Safety shoes are recommended when handling cylinders.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**GAS DENSITY @ 0°C (32°F), 1 atm:** 0.07314 lb/ft<sup>3</sup> (1.1716 kg/m<sup>3</sup>)

**BOILING POINT @ 10 psig:** -75°C (-103°F)

**FREEZING/MELTING POINT (@ 10 psig):** -82.2°C (-116.°F)

**SPECIFIC GRAVITY OF LIQUID @ -80°C (-112°F):** 0.613

**pH:** Not applicable.

**SPECIFIC GRAVITY OF GAS @ 0°C (32°F) (air = 1):** 0.906

**MOLECULAR WEIGHT:** 26.04

**SOLUBILITY IN WATER, vol/vol @ 0°C (32°F and 1 atm):** 1.7

**EXPANSION RATIO:** Not applicable.

**EVAPORATION RATE (nBuAc = 1):** Not applicable.

**ODOR THRESHOLD:** 226 ppm (detection)

**SPECIFIC VOLUME OF GAS @ 21.1°C (70°F) 1 atm:** 14.7 ft<sup>3</sup>/lb (0.918 m<sup>3</sup>/kg)

**VAPOR PRESSURE @ 21.1°C (70°F):** 635 psig (4378 kPa)

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE AND COLOR:** Colorless gas. Acetylene of 100% purity is odorless, but commercial purity has a garlic-like odor.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** Commercial purity Acetylene has a garlic-like odor that may be a warning property. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

## 10. STABILITY and REACTIVITY

**STABILITY:** Acetylene is stable at standard temperatures and pressures. Gaseous acetylene may decompose violently at elevated temperatures and pressures. Acetylene must not be used above pressure greater than 15 psig. The higher the pressure, the more likely it is for a reaction to occur.

**DECOMPOSITION PRODUCTS** Carbon and hydrogen. When ignited in the presence of oxygen, carbon monoxide and carbon dioxide will be generated.

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE** Acetylene is not compatible with the following materials: Strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride), calcium hypochlorite; various heavy metals (copper, silver, mercury, brass with a copper content exceeding 65%) and the salts of these metals; halogens (bromine, chlorine, iodine, fluorine), hydrides (i.e. sodium hydride, cesium hydride), ozone, perchloric acid, potassium.

**HAZARDOUS POLYMERIZATION.** Can occur when heated or under pressure.

**CONDITIONS TO AVOID:** Contact with incompatible materials and exposure to heat, sparks and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA** The following information is for Acetylene.

TCLo (inhalation, human) = 20 pph, central nervous system, respiratory system effects  
LCLo (inhalation, human) = 500,000 ppm/5 minutes

Other data pertaining to the effects of Acetylene inhalation on humans are as follows:

<u>Concentration</u>	<u>Symptom</u>
100,000 ppm	Intoxication (drowsiness, dizziness, giddiness)
200,000 ppm	Severe intoxication
300,000 ppm	Loss of coordination
350,000 ppm	Unconsciousness after 5 minutes of exposure.

**Effects on Short-Term Inhalation:** Animals have shown tolerance to 10% Acetylene. In studies with dogs, cats, and rabbits, Acetylene acts as an anesthetic at 20% exposure. Recovery occurs if the oxygen level is maintained. In an oxygen-deficient environment, death may occur after 5-10 minutes. Rodents exposed to 25, 50, and 80 percent Acetylene in oxygen for 1-2 hours daily (93 hours total exposure), evidenced no weight change or cellular damage. Mixtures of 80% Acetylene/20% oxygen caused a rise in blood pressure in an exposed cat.

**SUSPECTED CANCER AGENT:** Acetylene is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

**IRRITANCY OF PRODUCT:** This product is not irritating, however, contact with the solvent can be slightly irritating to contaminated skin or eyes.

**SENSITIZATION TO THE PRODUCT.** Acetylene is not known to cause sensitization in humans.

**REPRODUCTIVE TOXICITY INFORMATION.** Listed below is information concerning the effects of Acetylene on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Acetylene.

Embryotoxicity: No embryotoxic effects have been described for Acetylene.

Teratogenicity: No teratogenicity effects have been described for Acetylene.

Reproductive Toxicity: No reproductive toxicity effects have been described for Acetylene.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory conditions may be aggravated by over-exposure to Acetylene.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Acetylene.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary, treat symptoms, reduce or eliminate exposure.



## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY.** Acetylene will be dissipated rapidly in well-ventilated areas. The following environmental data are available for acetylene

**ACETYLENE:** Water Solubility = 100 vol /100 vol at 18 EC Acetylene is not expected to be harmful to aquatic life. Only moderately toxic to fish. Volatility and low solubility suggest it would be rare for water to become critically polluted from accidental releases. Acetylene is biodegraded through various plant and bacterial systems by inactivating atmospheric acetylene through their nitrogen-fixing mechanisms.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS** Any adverse effect on animals would be related to oxygen deficient environments and the anesthetic properties of Acetylene at high concentrations of exposure. No adverse effect is anticipated to occur to plant-life.

**EFFECT OF CHEMICAL ON AQUATIC LIFE.** No evidence is currently available on Acetylene's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

<b>PROPER SHIPPING NAME:</b>	Acetylene, dissolved
<b>HAZARD CLASS NUMBER and DESCRIPTION</b>	2.1 (Flammable Gas)
<b>UN IDENTIFICATION NUMBER.</b>	UN 1001
<b>PACKING GROUP</b>	Not applicable.
<b>DOT LABEL(S) REQUIRED:</b>	Flammable Gas
<b>NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996).</b>	116

**MARINE POLLUTANT.** Acetylene is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Acetylene is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act. This product is subject to the reporting requirements of Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (40 CFR 370.21).

**SARA THRESHOLD PLANNING QUANTITY** Not applicable

**TSCA INVENTORY STATUS:** Acetylene is listed on the TSCA Inventory

**CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

### OTHER U.S. FEDERAL REGULATIONS:

- Acetylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Acetylene is not listed in Appendix A, however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lbs (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.
- Acetylene does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Acetylene is listed in Table 3 as a Regulated Substance in quantities of 10,000 lbs (4,553 kg) or greater, per 40 CFR, Part 68, of the Risk Management for Chemical Accidental Release Prevention

**OTHER CANADIAN REGULATIONS:** Acetylene is categorized as a Controlled Product, Hazard Classes A, B1, F as per the Controlled Product Regulations.

## 15. REGULATORY INFORMATION (Continued)

**STATE REGULATORY INFORMATION:** Acetylene is covered under specific State regulations, as denoted below

Alaska - Designated Toxic and Hazardous Substances: Acetylene

California - Permissible Exposure Limits for Chemical Contaminants: Acetylene

Florida - Substance List: Acetylene.

Illinois - Toxic Substance List: Acetylene.

Kansas - Section 302/313 List: No

Massachusetts - Substance List: Acetylene

Minnesota - List of Hazardous Substances: Acetylene

Missouri - Employer Information/Toxic Substance List: Acetylene

New Jersey - Right to Know Hazardous Substance List: Acetylene

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Acetylene

Rhode Island - Hazardous Substance List: Acetylene

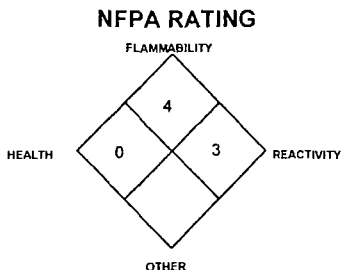
Texas - Hazardous Substance List: No

West Virginia - Hazardous Substance List: No

Wisconsin - Toxic and Hazardous Substances: No

**CALIFORNIA PROPOSITION 65:** Acetylene is not on the California Proposition 65 lists.

## 16. OTHER INFORMATION



HAZARDOUS MATERIAL INFORMATION SYSTEM		
HEALTH	(BLUE)	0
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	3
PROTECTIVE EQUIPMENT		B
EYES	RESPIRATORY	HANDS
BODY		
See Section 8		
For routine industrial applications		

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about acetylene can be found in the following pamphlets and videos published by: Compressed Gas Association Inc. (CGA), 4221 Walney Road 5<sup>th</sup> floor, Chantilly, VA 20151-2923 (703) 788-2700.

- G-1 "Acetylene"
- G-1.1 "Commodity Specification for Acetylene"
- P-1 "Safe Handling of Compressed Gases in Containers"
- SB-4 "Handling Acetylene Cylinders in Fire Situations"
- SB-8 "Use of Oxy-fuel Gas Welding and Cutting Apparatus"
- AV-9 "Handling Acetylene Cylinders in Fire Situations"
- "Handbook of Compressed Gases"

## 16. OTHER INFORMATION (Continued)

PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302



AIR LIQUIDE

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date, however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**AIR LIQUIDE**

# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards.

## 1. PRODUCT IDENTIFICATION

**CHEMICAL NAME; CLASS: TRICHLOROTRIFLUOROETHANE**

**SYNONYMS:** 1,1,2-Trichlorofluoromethane; 1,1,2-Trichloro-1,2,2-Trifluoroethane;  
Fluorocarbon 113; Refrigerant 113; Propellant 113; Freon-113;  
CFC-113; FC 113; R-113; TCTFE; TTE

**CHEMICAL FAMILY NAME:** Halogenated Aliphatic Hydrocarbon

**FORMULA:** C<sub>2</sub>Cl<sub>3</sub>F<sub>3</sub>

**PRODUCT USE:**

Document Number: 20165  
Refrigerant; foam blowing agent; solvent  
drying; degreasing agent; polymer  
intermediate for dechlorination of chemicals;  
fire extinguishing agent

**SUPPLIER/MANUFACTURER'S NAME:  
ADDRESS:**

AIR LIQUIDE AMERICA CORPORATION  
2700 Post Oak Drive  
Houston, TX 77056-8229

**EMERGENCY PHONE:**

CHEMTREC: 1-800-424-9300

**BUSINESS PHONE:**

General MSDS Information 1-713/896-2896  
Fax on Demand: 1-800/231-1366

DICE 01448

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	
Trichlorotrifluoroethane	76-13-1	100%	1000, A4 (Not Classifiable as a Human Carcinogen)	1250	1000	1250 (Vacated 1989 PEL)	2000	NIOSH REL: 1000 TWA; 1250 STEL DFG MAK: 500

NE = Not Established

C = Ceiling Limit

See Section 16 for Definitions of Terms Used.

NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

### 3. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Trichlorotrifluoroethane is a colorless non-flammable, liquefied gas with an ether-like odor at high concentrations. Trichlorotrifluoroethane can cause central nervous system depression after inhalation of high concentrations. Symptoms of such over-exposure can include headache, drowsiness, fatigue, and weakness. At high concentrations, the gas can act as an asphyxiant, by displacing oxygen. Therefore, exposure to high concentrations of this gas can be fatal. Contact of the gas or liquid can be irritating to the skin and eyes. Frostbite can be caused by contact with rapidly expanding gases or the liquefied gas. This gas is not flammable and not reactive in normal emergency response situations. However, if involved in a fire, this product can decompose to produce toxic gases (i.e. hydrogen fluoride, hydrogen chloride, phosgene).

**SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE:** The most significant routes of over-exposure for this gas are by inhalation and contact with the skin and eyes.

Exposure to low concentrations begins to cause impairment of psychomotor performance at about 2500 ppm. Symptoms include the loss of the ability to concentrate and mild lethargy.

Exposures to high concentrations of this gas may cause central nervous system depression and irritation of the nose, throat and upper respiratory system. Effects of such over-exposure can include light-headedness, giddiness, shortness of breath, and narcosis.

High concentrations of this gas can also cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

**CONCENTRATION**

**SYMPTOM OF EXPOSURE**

12-16% Oxygen:

Breathing and pulse rate increased, muscular coordination slightly disturbed.

10-14% Oxygen:

Emotional upset, abnormal fatigue, disturbed respiration.

6-10% Oxygen:

Nausea and vomiting, collapse or loss of consciousness.

Below 6%:

Convulsive movements, possible respiratory collapse, and death.

**CONTACT WITH SKIN or EYES:** Brief contact of Trichlorotrifluoroethane with the skin is not irritating. Trichlorotrifluoroethane is a defatting agent and prolonged or repeated contact causes irritation and dermatitis (inflammation, reddening and swelling). Eye contact of concentrated vapors of Trichlorotrifluoroethane may be slightly irritating. Contact with the liquid and the eyes can cause irritation.

**OTHER POTENTIAL HEALTH EFFECTS:** Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact can quickly subside.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Over-exposure to Trichlorotrifluoroethane may cause the following health effects:

**ACUTE:** The most significant hazard associated with Trichlorotrifluoroethane is via inhalation of high concentrations. Such over-exposure can cause central nervous system depression and can cause oxygen deficiency. Symptoms of central nervous system depression include light-headedness, giddiness, shortness of breath, and narcosis. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion and nausea. Severe inhalation over-exposures may be fatal.

**CHRONIC:** There are currently no confirmed adverse health effects on humans associated with chronic exposure to Trichlorotrifluoroethane.

**TARGET ORGANS:** Respiratory system, central nervous system.

DICE 01449

**HAZARDOUS MATERIAL INFORMATION  
SYSTEM**

**HEALTH**

(BLUE)

1

**FLAMMABILITY**

(RED)

0

**REACTIVITY**

(YELLOW)

0

**PROTECTIVE EQUIPMENT**

B

EYES

RESPIRATORY

HANDS

BODY

See Section 8

For routine industrial applications

## 4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus should be worn.

Remove victim(s) to fresh air, as quickly as possible. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Only trained personnel should administer supplemental oxygen.

**SKIN EXPOSURE:** Contact with the liquid or rapidly expanding gases can cause frostbite. In the event of frostbite, medical attention must be sought. Frozen tissue is painless and appears waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed. If the frozen part of the body has been thawed by the time medical attention has been obtained, cover the area with a dry sterile dressing and a large bulky protective covering.

**EYE EXPOSURE:** If liquid is splashed into eyes, or if irritation of the eye develops after exposure to liquid or gas, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not applicable.

**AUTOIGNITION TEMPERATURE:** Not applicable.

**FLAMMABLE LIMITS (in air by volume, %):**

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

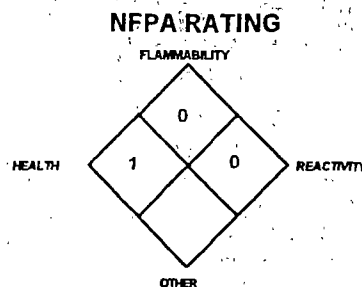
**FIRE EXTINGUISHING MATERIALS:** Non-flammable, inert gas. Use extinguishing media appropriate for surrounding fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** When involved in a fire, this material may decompose and produce toxic gases (i.e. phosgene, hydrogen fluoride, hydrogen chloride). Trichlorotrifluoroethane does not burn; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment.



## 6. ACCIDENTAL RELEASE MEASURES

**LEAK RESPONSE:** Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Minimum Personal Protective Equipment should be: **Level B: Self-Contained Breathing Apparatus.** Locate and seal the source of the leaking gas. Colorimetric tubes are available to detect the presence of Trichlorotrifluoroethane. Readings should be below levels listed in Section 2 (Composition and Information on Ingredients) and the area should be monitored for oxygen levels. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus.

If leaking incidentally from the cylinder or its valve, contact your supplier.

## 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES:** Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms, due to oxygen deficiency.

DICE 01450

## 7. HANDLING and USE (Continued)

**STORAGE AND HANDLING PRACTICES:** Cylinders should be stored upright and be firmly secured to prevent falling or being knocked-over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials which can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F).

Store containers away from heavily trafficked areas and emergency exits. Store away from process and production areas, away from elevators, building and room exits or main aisles leading to exits. Protect cylinders against physical damage. Use only storage containers and equipment (pipes, valves, fittings to relieve pressure, etc.) designed for the temperatures and pressures for the use and storage of Liquid Trichlorotrifluoroethane.

Use a check valve or other protective device in the discharge line to prevent hazardous backflow. Never tamper with pressure relief valves and cylinders.

Keep the smallest amount necessary on-site at any one time. Full and empty cylinders should be segregated. Use a first-in, first-out inventory systems to prevent full containers from being stored for long periods of time.

**SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:** Compressed gases can present significant safety hazards. The following rules are applicable to work situations in which cylinders are being used.

**Before Use:** Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap (where provided) in-place until cylinder is ready for use.

**During Use:** Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Do not use oils or grease on gas-handling fittings or equipment. Immediately contact the supplier if there are any difficulties associated with operating cylinder valve. Never insert an object (e.g wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc, on a compressed gas cylinder or make a cylinder part of and electric circuit.

**After Use:** Close main cylinder valve. Valves should be closed tightly. Replace valve protection cap. Mark empty cylinders "EMPTY".

**NOTE:** Use only DOT or ASME code containers designed for gas storage. Close valve after each use and when empty.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:** Use the proper CGA connections, DO NOT USE ADAPTERS:

<u>THREADED:</u>	CGA 660
<u>PIN-INDEXED YOKE:</u>	Not applicable.
<u>ULTRA HIGH INTEGRITY:</u>	Not applicable.

DICE 01451

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents gas dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of oxygen.

**RESPIRATORY PROTECTION:** Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of this product. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards. The following NIOSH respiratory protection recommendations are for Trichlorotrifluoroethane (as 1,1,2-Trichloro-1,2,2-Trifluoroethane).

### CONCENTRATION

### RESPIRATORY EQUIPMENT

Up to 2000 ppm

Supplied Air Respirator (SAR), or full-facepiece SCBA.

Emergency or Planned Entry into Unknown Concentration or IDLH Conditions: Positive-pressure, full facepiece SCBA or positive pressure, full-facepiece Supplied Air Respirator (SAR) with an auxiliary positive pressure SCBA.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

NIOSH respiratory protection recommendations (continued)

Escape Gas mask with organic vapor cartridge or escape-type SCBA should be used.

The IDLH concentration for Trichlorotrifluoroethane is 2000 ppm.

**EYE PROTECTION:** Splash goggles or safety glasses. Face-shields should be worn if contact with the liquefied gas is anticipated.

**HAND PROTECTION:** Wear leather gloves or glove protection appropriate to the specific operation for which this product is used.

**BODY PROTECTION:** Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product. Safety shoes are recommended when handling cylinders.

## 9. PHYSICAL and CHEMICAL PROPERTIES

DENSITY, SATURATED VAPOR: 7.38 kg/m<sup>3</sup>

LIQUID DENSITY @ 25°C (77°F): 1.565 kg/L

BOILING POINT @ 101.325 kPa: 47.6°C (117.6°F)

FREEZING/MELTING POINT: -35.0°C (-31.07°F)

SPECIFIC GRAVITY (water = 1) @ 25°C (77°F): 1.5635

SOLUBILITY IN WATER weight % @ 25°C (77°F): 0.017%

EVAPORATION RATE (nBuAc = 1): Not applicable.

ODOR THRESHOLD: 45 ppm (odor detection); 70 ppm (recognition)

VAPOR PRESSURE @ 21.1°C (70°F): 5.5 psia

COEFFICIENT WATER/OIL DISTRIBUTION: Log P (oct) 1.66

APPEARANCE AND COLOR: Colorless, odorless, non-flammable gas. At high concentrations, this gas may have a sweetish odor.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** The odor is good warning properties of release of this gas as it is detectable well in advance of toxic levels. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

pH: Not applicable.

MOLECULAR WEIGHT: 187.376

EXPANSION RATIO: Not applicable.

SPECIFIC VOLUME: Not available.

## 10. STABILITY and REACTIVITY

**STABILITY:** Normally stable. Trichlorotrifluoroethane decomposes above 250-320°C (482-608°F).

**DECOMPOSITION PRODUCTS:** If product is exposed to fire, it may decompose yielding toxic products (i.e. hydrogen fluoride, phosgene, hydrogen chloride).

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Trichlorotrifluoroethane can react explosively with chemically active metals, such as, calcium, powdered aluminum, zinc, magnesium, beryllium, titanium, samarium, lithium and barium.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Avoid contact with incompatible materials and avoid exposing cylinders to extremely high temperatures, which could cause the cylinders to rupture or burst.

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The following information is available for Trichlorotrifluoroethane.

Skin-Rabbit, adult 500 mg open Mild irritation effects

Oral-Rat LD50: 43 g/kg

Inhalation-Rat LCLo: 87,000 ppm/6 hours

Inhalation-Mouse LCLo: 25 pph/90 seconds

**SUSPECTED CANCER AGENT:** Trichlorotrifluoroethane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and therefore is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

DICE 01452



## 11. TOXICOLOGICAL INFORMATION (Continued)

**IRRITANCY OF PRODUCT:** Brief contact of Trichlorotrifluoroethane with the skin is not irritating. Trichlorotrifluoroethane is a defatting agent and prolonged or repeated contact causes irritation and dermatitis (inflammation, reddening and swelling). Eye contact of concentrated vapors of Trichlorotrifluoroethane may be slightly irritating. Contact with rapidly expanding gases can cause frostbite to exposed tissue.

**SENSITIZATION OF PRODUCT:** Trichlorotrifluoroethane is not known to cause sensitization in humans.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects Trichlorotrifluoroethane on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Trichlorotrifluoroethane.

Embryotoxicity: No embryotoxic effects have been described for Trichlorotrifluoroethane.

Teratogenicity: No teratogenicity effects have been described for Trichlorotrifluoroethane.

Reproductive Toxicity: No reproductive toxicity effects have been described for Trichlorotrifluoroethane.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing respiratory and skin conditions may be aggravated by over-exposure to Trichlorotrifluoroethane.

**RECOMMENDATIONS TO PHYSICIANS:** Administer oxygen, if necessary; treat symptoms; eliminate exposure.

**BIOLOGICAL EXPOSURE INDICES (BEIs):** Currently, Biological Exposure Indices (BEIs) are not applicable for Trichlorotrifluoroethane.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL STABILITY:** The gas will be dissipated rapidly in well-ventilated areas. Trichlorotrifluoroethane is a chlorofluorocarbon (CFC) compound. Chlorofluorocarbon compounds have been implicated in the possible depletion of the stratospheric ozone, via a series of complex chemical reactions which occur in the upper atmosphere. Atmospheric ozone is essential in protecting plants and animals from potentially harmful ultraviolet-light exposures. All work practice must be directed at eliminating environmental contamination. The following environmental data are available for Trichlorotrifluoroethane:

Log  $K_{ow}$  = 1.66. Water solubility of 170 mg/L @ 25°C BCF = 34 and 11 Trichlorotrifluoroethane is not expected to bioaccumulate significantly in aquatic organisms.

**EFFECT OF MATERIAL ON PLANTS or ANIMALS:** Any adverse effect on animals would be related to adverse effects on the cardiovascular system and to exposure to oxygen deficient environments. The symptoms experienced by over-exposed animals would be similar to those described for exposed humans. No adverse effect is anticipated to occur to plant-life, except for frost produced in the presence of rapidly expanding gases.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No evidence is currently available on this product's effects on aquatic life.

## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Air Liquide. Do not dispose of locally.

## 14. TRANSPORTATION INFORMATION

**THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

**PROPER SHIPPING NAME:** Refrigerant gases, n.o.s. (Trichlorotrifluoroethane)

**HAZARD CLASS NUMBER and DESCRIPTION:** 2.2 (Non-flammable Gas)

**UN IDENTIFICATION NUMBER:** UN 1078

**PACKING GROUP:** Not applicable.

**DOT LABEL(S) REQUIRED:** Non-Flammable Gas

**DICE 01453**

**NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996):** 126

## 14. TRANSPORTATION INFORMATION (Continued)

**MARINE POLLUTANT:** Trichlorotrifluoroethane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**SPECIAL SHIPPING INFORMATION:** Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles present serious safety hazards and should be discouraged.

**NOTE:** Shipment of compressed gas cylinders which have not been filled with the owners consent is a violation of Federal law (49 CFR, Part 173.301 (b)).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

## 15. REGULATORY INFORMATION

**SARA REPORTING REQUIREMENTS:** Trichlorotrifluoroethane is subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows:

COMPONENT	SARA 302	SARA 304	SARA 313
Trichlorotrifluoroethane	NO	NO	YES

**SARA THRESHOLD PLANNING QUANTITY:** Not applicable.

**TSCA INVENTORY STATUS:** Trichlorotrifluoroethane is listed on the TSCA Inventory.

**CERCLA REPORTABLE QUANTITIES (RQ):** Not applicable.

**CALIFORNIA PROPOSITION 65:** Trichlorotrifluoroethane is not on the California Proposition 65 lists.

**STATE REGULATORY INFORMATION:** Trichlorotrifluoroethane is covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: Trichlorotrifluoroethane

California - Permissible Exposure Limits for Chemical Contaminants: Trichlorotrifluoroethane.

Florida - Substance List: Trichlorotrifluoroethane.

Illinois - Toxic Substance List: Trichlorotrifluoroethane

Kansas - Section 302/313 List: No.

Massachusetts - Substance List: Trichlorotrifluoroethane.

Minnesota - List of Hazardous Substances: Trichlorotrifluoroethane.

Missouri - Employer Information/Toxic Substance List: Trichlorotrifluoroethane.

New Jersey - Right to Know Hazardous Substance List: Trichlorotrifluoroethane.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: No

Pennsylvania - Hazardous Substance List: Trichlorotrifluoroethane

Rhode Island - Hazardous Substance List: Trichlorotrifluoroethane.

Texas - Hazardous Substance List: Trichlorotrifluoroethane.

West Virginia - Hazardous Substance List: Trichlorotrifluoroethane

Wisconsin - Toxic and Hazardous Substances: Trichlorotrifluoroethane.

### OTHER U.S. FEDERAL REGULATIONS:

- Trichlorotrifluoroethane is listed as a Class I ozone-depleting chemical. This product is required to bear the following label:

**Warning:** Contains Trichlorotrifluoroethane, a substance which harms public health and environment by destroying ozone in the upper atmosphere.

- Trichlorotrifluoroethane is subject to the reporting requirements under Title VI of the Clean Air Act Amendments of 1990: "Stratospheric Ozone Protection". requirements under Title VI of the Clean Air Act Amendments of 1990: "Stratospheric Ozone Protection" of Section 112(r) of the Clean Air Act.
- Trichlorotrifluoroethane is subject to the reporting requirements of CFR 29 1910.1000. Trichlorotrifluoroethane is listed on Table Z.1.
- Trichlorotrifluoroethane is not listed in Appendix A as a highly hazardous chemical, per 29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals.
- Trichlorotrifluoroethane is not listed as a Regulated Substance, per 40 CFR, Part 68; of the Risk Management for Chemical Accidental Release Prevention.

**OTHER CANADIAN REGULATIONS:** Trichlorotrifluoroethane is categorized as a Controlled Product, Hazard Class A, as per the Controlled Product Regulations.

DICE 01454

## 16. OTHER INFORMATION

**MIXTURES:** When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102. Telephone: (703) 412-0900.

- P-1 "Safe Handling of Compressed Gases in Containers"
- P-14 "Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmospheres"
- SB-2 "Oxygen Deficient Atmospheres"
- AV-1 "Safe Handling and Storage of Compressed Gases"

**PREPARED BY:**

CHEMICAL SAFETY ASSOCIATES, Inc.  
9163 Chesapeake Drive, San Diego, CA 92123-1002  
619/565-0302

Fax on Demand: 1-800/231-1366



**AIR LIQUIDE**

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

DICE 01455

600189-00 MOBIL DTE OIL HEAVY  
MATERIAL SAFETY DATA BULLETIN

## 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MOBIL DTE OIL HEAVY

SUPPLIER: EXXONMOBIL CORPORATION

3225 GALLOWES RD.

FAIRFAX, VA 22037

24 - Hour Health and Safety Emergency (call collect): 609-737-4411

24 - Hour Transportation Emergency (Primary) CHEMTREC: 800-424-9300

(Secondary) 281-834-3296

Product and Technical Information:

Lubricants and Specialties: 800-662-4525 800-443-9966

Fuels Products: 800-947-9147

MSDS Pay on Demand: 613-228-1467

MSDS Internet Website: <http://emmsds.ihssolutions.com/>

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: PET. HYDROCARBONS AND ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

None.

See Section 8 for exposure limits (if applicable).

## 3. HAZARDS IDENTIFICATION

Under normal conditions of use, this product is not considered hazardous according to regulatory guidelines (See section 15).

EMERGENCY OVERVIEW: Amber Liquid. DOT ERG No. : NA

POTENTIAL HEALTH EFFECTS: Under normal conditions of intended use,

this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation.

For further health effects/toxicological data, see Section 11.

## 4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.

SKIN CONTACT: Wash contact areas with soap and water. Remove and clean oil soaked clothing daily and wash affected area. (See Section 16 - Injection Injury)

INHALATION: Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapor or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.

INGESTION: Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

## 5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing.

Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C(F): > 210(410) (ASTM D-93).

Flammable Limits (approx.% vol.in air) - LEL: 0.9%, UEL: 7.0%

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

## 6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.

PERSONAL PRECAUTIONS: See Section 8

## 7. HANDLING AND STORAGE

HANDLING: No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing

DICE 01457

agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.

**SPECIAL PRECAUTIONS:** Prevent small spills and leakages to avoid slip hazard.

**EMPTY CONTAINER WARNING:** Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### OCCUPATIONAL EXPOSURE LIMITS:

When mists/aerosols can occur, the following are recommended: 5 mg/m<sup>3</sup> (as oil mist) - ACGIH Threshold Limit Value (TLV), 10 mg/m<sup>3</sup> (as oil mist) - ACGIH Short Term Exposure Limit (STEL), 5 mg/m<sup>3</sup> (as oil mist) - CSHA Permissible Exposure Limit (PEL)

**VENTILATION:** If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.

**RESPIRATORY PROTECTION:** If mists are generated, and/or when ventilation is not adequate, wear approved respirator

**EYE PROTECTION:** If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.

**SKIN PROTECTION:** Not normally required. When splashing or liquid contact can occur frequently, wear oil resistant gloves and/or other protective clothing. Good personal hygiene practices should always be followed.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

**APPEARANCE:** Liquid

**COLOR:** Amber

**ODOR:** Mild

**ODOR THRESHOLD-ppm:** NE

**pH:** NA

**BOILING POINT C(F):** > 316(600)

**MELTING POINT C(F):** NA

**FLASH POINT C(F):** > 210(410) (ASTM D-93)

**FLAMMABILITY (solids):** NE

**AUTO FLAMMABILITY C(F):** NA

**EXPLOSIVE PROPERTIES:** NA

**OXIDIZING PROPERTIES:** NA

**VAPOR PRESSURE-mmHg 20 C:** < 0.1

**VAPOR DENSITY:** > 2.0

**EVAPORATION RATE:** NE

**RELATIVE DENSITY, 15/4 C:** 0.879

**SOLUBILITY IN WATER:** Negligible

**PARTITION COEFFICIENT:** > 3.5

**VISCOSITY AT 40 C, cSt:** 95.0

VISCOSITY AT 100 C, cSt: 10.8  
 POUR POINT C(F): < -6(22)  
 FREEZING POINT C(F): NE  
 VOLATILE ORGANIC COMPOUND: NE  
 DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only  
 NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES  
 FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

## 10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.  
 CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.  
 INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.  
 HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.  
 HAZARDOUS POLYMERIZATION: Will not occur

## 11. TOXICOLOGICAL DATA

### ---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.  
 DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.  
 INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.  
 EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.  
 SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.  
 OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

### ---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

### ---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

### ---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346 and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products

## 12. ECOLOGICAL INFORMATION

### ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative products.

ECOTOXICITY: Available ecotoxicity data (LL50 >1000 mg/L) indicates that adverse effects to aquatic organisms are not expected from this product.

MOBILITY: When released into the environment, adsorption to sediment and soil will be the predominant behavior.

PERSISTENCE AND DEGRADABILITY: This product is expected to be inherently biodegradable.

BIOACCUMULATIVE POTENTIAL: Bioaccumulation is unlikely due to the very low water solubility of this product, therefore bioavailability to aquatic organisms is minimal.

## 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity. The unused product is not formulated with substances covered by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

## 14. TRANSPORT INFORMATION



USA DOT: NOT REGULATED BY USA DOT.  
 RID/ADR: NOT REGULATED BY RID/ADR  
 IMO: NOT REGULATED BY IMO  
 IATA: NOT REGULATED BY IATA.  
 STATIC ACCUMULATOR (50 picosiemens or less): YES

## 15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this product is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.  
 EU Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling not required.  
 Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, and DSL.  
 U.S. Superfund Amendments and Reauthorization Act (SARA) Title III: This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".  
 SARA (311/312) REPORTABLE HAZARD CATEGORIES: None  
 This product contains no chemicals subject to the supplier notification requirements of SARA (313) toxic release program.  
 THIS PRODUCT HAS BEEN AUTHORIZED BY USDA FOR USE UNDER THE FOLLOWING CATEGORY: This product is acceptable as a lubricant where there is no possibility of food contact (complies with earlier USDA guidelines for H-2 lubricant use).

The following product ingredients are cited on the lists below

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
ZINC (ELEMENTAL ANALYSIS) (<0.01%)	7440-66-6	22
PHOSPHORODITHIOIC ACID, O,O-DI	68649-42-3	22
CI-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZEDP) (0.10%)		

### --- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CAPC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 393
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA 2	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

Code key: CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

## 16. OTHER INFORMATION

USE: STEAM TURBINE OIL

NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES ARE NOT FORMULATED TO CONTAIN PCBs

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical

treatment within the first few hours may significantly reduce the ultimate extent of injury

#### INDUSTRIAL LABEL

Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

\*\*\*\*\*  
For Internal Use Only: MHC: 1\* 1\* 1\* 1\* 1\*, MPPEC. A. IRN: 600189-00, ELIS: 400033, CMCS97. 970106, REQ: US - MARKETING. SAFE USE: L  
EHS Approval Date: 28MAY2002  
\*\*\*\*\*

\*\*\*\*\*  
Legally required information is given in accordance with applicable Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending any license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users. Use or re-transmission of the information contained herein in any other format than the format as presented is strictly prohibited. Mobil neither represents nor warrants that the format, content or product formulas contained in this document comply with the laws of any other country except the United States of America.  
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**SECTION 1 - CHEMICAL PRODUCT & COMPANY IDENTIFICATION**

**PRODUCT NAME:** Carbide Lime

**MANUFACTURER'S NAME:** Carbide Industries

**ADDRESS:** 4400 Bells Lane P. O. Box 3727  
Louisville Kentucky 40211 Louisville, Kentucky 40201

**PHONE:** 1-800-626-2578

**EMERGENCY PHONE:** CI 1-502-775-4123 (24 hr.) Chemtrec 1-800-424-9300

In Canada Philip Environmental 1-800-567-7455 ERP-2-1008

**SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS**

PRIMARY COMPONENT(S)	%	CAS#	THRESHOLD LIMIT VALUE	PEL
Calcium Hydroxide	93	1305-62-0	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> (respirable)
Calcium Carbonate	<5	471-34-1	10 mg/m <sup>3</sup>	15 / 5 mg/m <sup>3</sup> (total / respirable)

(Carbide Lime, based upon calcium carbide, typically contains small amounts of metallic slag and un-reacted carbon particles)

**SECTION 3 - HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW:**

Light gray material, sized from small clumps to fine powder, occasionally in suspension in water. Caustic, may cause skin and eye irritation and burns.

**POTENTIAL HEALTH EFFECTS:**

- 1. INHALATION** - Irritating to respiratory tract. Experienced as nausea, vomiting, cough, excess sputum and chest discomfort. May cause pulmonary edema.
- 2. EYES** - Exposure may cause severe irritation, experienced as pain, excess tearing, conjunctival edema and hemorrhage, corneal edema and opacification.
- 3. SKIN** - Exposure may cause irritation, seen as redness, with possible swelling.
- 4. INGESTION** - Exposure can cause burns to mouth, throat and digestive tract.
- 5. CHRONIC** - Dermatitis

DICE 01463

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not apply to the product's use in combination with other materials or for use other than its intended purpose.

## SECTION 4 - FIRST AID MEASURES

1. **INHALATION** - Remove to fresh air. If breathing has stopped, artificial respiration should be applied; get prompt medical attention
2. **EYES** - Immediately flush eyes with running water for 15 minutes, including under eyelids. Get prompt medical attention
3. **SKIN** - Brush off excess material, flush with vinegar to neutralize alkali effects. Wash with soap and water.
4. **INGESTION** - Dilute by drinking water or milk. Gargle with vinegar to prevent throat irritation. Do not induce vomiting. Get prompt medical attention.

## SECTION 5 - FIRE FIGHTING MEASURES

<b>FLASH POINT</b>	NA	<b>AUTO-IGNITION TEMPERATURE:</b>	NA	<b>FLAMMABLE LIMITS IN AIR % BY VOLUME:</b>	Lower: NA Upper: NA
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**NFPA 704M RATING** 1-0-0

**EXTINGUISHER MEDIA** Not flammable

### SPECIAL FIRE FIGHTING PROCEDURES

Material is caustic. When heated above 580(C), will dissociate into water vapor and calcium oxide (CaO). When present in a fire in an enclosed area, full protective clothing, eye protection, and self-contained breathing apparatus should be worn.

### UNUSUAL FIRE AND EXPLOSION HAZARDS

As produced by the reaction of water and calcium carbide, may contain small amounts of acetylene gas - possibly evolving a flammable mixture.

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Use appropriate protective equipment when responding to spills. Keep product contained. Follow federal, state and local regulations for disposal.

DICE 01464

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not apply to the product's use in combination with other materials or for use other than its intended purpose.

## SECTION 7 - HANDLING AND STORAGE

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Store in clean, ventilated area. Isolate incompatible materials (see Section 10). Post "No Smoking" or "No Open Flames" signs in storage area. Accumulations of acetylene after its release from the slurry can be ignited by any ignition source. All electrical equipment used in or around carbide lime handling or storage areas should comply with the requirements of the National Electrical Code.

### OTHER PRECAUTIONS:

Consumption of food or beverages should be prohibited in the work area. Access to storage and handling areas should be limited to trained, authorized personnel.

## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

### RESPIRATORY

**PROTECTION** NIOSH/MSHA respirator for nuisance dusts and mists (NIOSH-N95 approved)

**VENTILATION** Vent to dust collector

**LOCAL EXHAUST** Yes  
**MECHANICAL (General)** Yes  
**SPECIAL** No

### PROTECTIVE GLOVES

Leather for dry material, rubber for slurry

### EYE PROTECTION

Safety Glasses w/ side shields for dusty areas; face shields or goggles for handling slurry.

### OTHER PROTECTIVE CLOTHING OR EQUIPMENT

Long sleeve shirts & long trousers. Rubber apron in slurry areas. Eye wash stations and safety showers in work areas.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

**BOILING POINT** (dissociates) 580(C) **PERCENT VOLATILE BY VOLUME (%)** NA

**DENSITY** (H<sub>2</sub>O = 1) 2.24 **VAPOR DENSITY (Air=1):** NA

**VAPOR PRESSURE** (AT 20(C)) NA **EVAPORATION RATE:** NA

**SOLUBILITY IN WATER** 0.185 grams / milliliter at 0(C)

**REACTIVITY IN WATER** None

**APPEARANCE AND ODOR** Light gray, dusty appearance, slight ammonia odor

DICE 01465

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not apply to the products use in combination with other materials or for use other than its intended purpose.

## SECTION 10 - STABILITY AND REACTIVITY

### STABILITY (Conditions to Avoid)

Stable. Will neutralize acid solutions.

### INCOMPATIBILITY (Materials to Avoid)

Acidic material, organic nitro compounds, maleic anhydride phosphorus & copper.

### HAZARDOUS DECOMPOSITION PRODUCTS

Calcium Oxide

**HAZARDOUS POLYMERIZATION (Conditions to Avoid)** Will not occur

## SECTION 11 - TOXICOLOGICAL INFORMATION

### MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Non-toxic, however it may aggravate upper respiratory symptoms

**CARCINOGENICITY** None

National Toxicology Program Yes ☐ No ☒

I.A.R.C. Monographs Yes ☐ No ☒

OSHA Yes ☐ No ☒

[LCL<sub>50</sub>]: 7340 mg/kg (oral - rat)

## SECTION 12 - ECOLOGICAL INFORMATION

No adverse ecological effects are expected. Due to the alkalinity of lime, it may be subject to different regulations in different locations.

## SECTION 13 - DISPOSAL CONSIDERATIONS

Recovered lime can be collected and reused for many applications, such as water treatment, road stabilization and acid neutralization. When disposal becomes necessary, follow applicable federal, state, and local government regulations.

DICE 01466

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not apply to the product's use in combination with other materials or for use other than its intended purpose.

## SECTION 14 - TRANSPORT INFORMATION

**PROPER SHIPPING NAME** Calcium Hydroxide

**HAZARD CLASS** NA

**UN NUMBER** NA

**DOT LABEL(S)/PLACARD(S)** NA

**REPORTABLE QUANTITY ( RQ)** None

**PACKAGING:** Tank truck, dump truck

## SECTION 15 - REGULATORY INFORMATION

**APPLICABLE REGULATIONS:**

None

## SECTION 16 - OTHER INFORMATION

**MSDS REVISION:** 1.4

**MSDS AUTHORIZATION DATE:** November 1<sup>st</sup>, 2002

DICE 01467

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not apply to the product's use in combination with other materials or for use other than its intended purpose.

# Material Safety Data Sheet



Propylene

## Section 1. Chemical product and company identification

Product Name : Propylene  
Supplier : BTU GASES  
4344 S. Main  
Pearland, TX 77581

Product use : Industrial Fuel Gas  
MSDS# : 010307  
Date of : 1-03-07  
Preparation/Revision  
In case of emergency : 1-800-847-5664

## Section 2. Hazards identification

Physical state : Gas (COLORLESS LIQUEFIED COMPRESSED GAS WITH A MILD ODOR.)  
Emergency overview : Warning!  
FLAMMABLE GAS.  
CONTENTS UNDER PRESSURE.  
VAPOR MAY CAUSE FLASH FIRE  
POSSIBLE CANCER HAZARD.  
MAY CAUSE CANCER BASED ON ANIMAL DATA  
Keep away from heat, sparks and flame. Do not puncture or incinerate container. Keep container closed. Use only with adequate ventilation. Risk of cancer depends on duration and level of exposure.  
Contact with rapidly expanding gases can cause frostbite.

Routes of entry : Inhalation

### Potential acute health effects

Eyes : No known significant effects or critical hazards  
Skin : No known significant effects or critical hazards.  
Inhalation : Acts as a simple asphyxiant  
Ingestion : Ingestion is not a normal route of exposure for gases

Potential chronic health effects : CARCINOGENIC EFFECTS A4 (Not classifiable for human or animal.) by ACGIH, 3  
(Not classifiable for human.) by IARC  
MUTAGENIC EFFECTS: Not available.  
TERATOGENIC EFFECTS: Not available.

Medical conditions aggravated by overexposure : Acute or chronic respiratory conditions may be aggravated by overexposure to this gas.

See toxicological information (section 11)

## Section 3. Composition, Information on Ingredients

Name	CAS number	% Volume	Exposure limits
Propylene	115-07-1	100	SUVA (Switzerland, 12/2003). MAK: 17500 mg/m <sup>3</sup> 8 hour(s). Form: All forms MAK: 10000 ppm 8 hour(s). Form: All forms Arbejdssynet (Denmark, 10/2002). GV: 172 mg/m <sup>3</sup> 8 hour(s). Form: All forms GV: 100 ppm 8 hour(s). Form: All forms Dėl Lietuvos Higienos Normos (Lithuania, 12/2001). TWA: 900 mg/m <sup>3</sup> 8 hour(s). Form: All forms TWA: 500 ppm 8 hour(s). Form: All forms



**Propylene****Nationale MAC-lijst (Netherlands, 12/2004).****Notes:**TGG: 900 mg/m<sup>3</sup> 8 hour(s) Form: All forms

TGG: 500 ppm 8 hour(s) Form: All forms

**AFS (Sweden, 3/2000).**NGV: 900 mg/m<sup>3</sup> 8 hour(s) Form: All forms

NGV: 500 ppm 8 hour(s) Form: All forms

**LV Nat. Standardisation and Meteorological Centre (Latvia, 12/1998).**TWA: 100 mg/m<sup>3</sup> 8 hour(s) Form: All forms**Section 4. First aid measures**

No action shall be taken involving any personal risk or without suitable training. If fumes are still suspected to be present, the rescuer should wear an appropriate mask or a self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
- Skin contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Inhalation** : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

**Section 5. Fire fighting measures**

- Flammability of the product** : Flammable
- Auto-ignition temperature** : 454.85 to 459.85°C (850.7 to 859.7°F)
- Flash point** : Closed cup: 108.15°C (-162.7°F)
- Flammable limits** : Lower 2.4% Upper 11%
- Products of combustion** : These products are carbon oxides (CO, CO<sub>2</sub>).
- Fire hazards in presence of various substances** : Extremely flammable in presence of open flames, sparks and static discharge, of oxidizing materials.
- Fire fighting media and instructions** : In case of fire, use water spray (fog), foam, dry chemicals, or CO<sub>2</sub>.
- If involved in fire, shut off flow immediately if it can be done without risk. Apply water from a safe distance to cool container and protect surrounding area.
- Extremely flammable. Gas may accumulate in confined areas, travel considerable distance to source of ignition and flash back causing fire or explosion.
- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

**Section 6. Accidental release measures**

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

DICE 01469

**Propylene****Section 7. Handling and storage**

- Handling** : Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire, minimize ignition sources. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not puncture or incinerate container. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage, do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

**Section 8. Exposure Controls, Personal Protection**

- Engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor or dust concentrations below any explosive limits. Use explosion-proof ventilation equipment.

**Personal protection**

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.  
The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93.
- Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Personal protection in case of a large spill** : A self-contained breathing apparatus should be used to avoid inhalation of the product.

Consult local authorities for acceptable exposure limits.

**Section 9. Physical and chemical properties**

- Molecular weight** : 42.09 g/mole
- Molecular formula** : C<sub>3</sub>H<sub>6</sub>
- Boiling/condensation point** : -47.7 °C (-53.9 °F)
- Melting/freezing point** : -185 °C (-301 °F)
- Critical temperature** : 91.9 °C (197.4 °F)
- Vapor pressure** : 136.6 psig
- Vapor density** : 1.4 (Air = 1)
- Specific Volume (ft<sup>3</sup>/lb)** : 9.09091
- Gas Density (lb/ft<sup>3</sup>)** : 0.11

**Section 10. Stability and reactivity**

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Extremely reactive or incompatible with oxidizing agents.

**Propylene****Section 11. Toxicological information**

**Chronic effects on humans** : **CARCINOGENIC EFFECTS** A4 (Not classifiable for human or animal) by ACGIH, 3  
(Not classifiable for human.) by IARC

**Other toxic effects on humans** : No specific information is available in our database regarding the other toxic effects of this material for humans

**Specific effects**

**Carcinogenic effects** : May cause cancer based on animal data. Risk of cancer depends on duration and level of exposure.

**Mutagenic effects** : No known significant effects or critical hazards

**Reproduction toxicity** : No known significant effects or critical hazards.

**Section 12. Ecological information**

**Products of degradation** : These products are carbon oxides (CO, CO<sub>2</sub>) and water

**Toxicity of the products of biodegradation** : The product itself and its products of degradation are not toxic

**Environmental fate** : Not available.



**Environmental hazards** : No known significant effects or critical hazards


**Toxicity to the environment** : Not available.

**Section 13. Disposal considerations**

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation.

**Section 14. Transport information**

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1077	PROPYLENE SEE ALSO PETROLEUM GASES, LIQUEFIED	2 1	Not applicable (gas)		<u>Limited quantity</u> Yes  <u>Packaging instruction</u> <b>Passenger Aircraft</b> Quantity limitation: Forbidden  <b>Cargo Aircraft</b> Quantity limitation: 150 kg  <u>Special provisions</u> 19, T50
TDG Classification	UN1077	PROPYLENE	2 1	Not applicable (gas).		<u>Explosive Limit and Limited Quantity Index</u> 0 125  <u>ERAP Index</u> 3000

<b>Propylene</b>				
				<u>Passenger Carrying Ship Index</u> Forbidden  <u>Passenger Carrying Road or Rail Index</u> Forbidden  <u>Special provisions</u> 29
<b>Mexico Classification</b>	UN1077	PROPYLENE SEE ALSO PETROLEUM GASES, LIQUEFIED	2 1	Not applicable (gas) 

## Section 15. Regulatory information

### United States

**U.S. Federal regulations** : TSCA 8(b) inventory: Propylene  
 SARA 302/304/311/312 extremely hazardous substances. No products were found  
 SARA 302/304 emergency planning and notification. No products were found.  
 SARA 302/304/311/312 hazardous chemicals. Propylene  
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification. Propylene:  
 Fire hazard, Sudden Release of Pressure  
 Clean Water Act (CWA) 307. No products were found  
 Clean Water Act (CWA) 311. No products were found.  
 Clean air act (CAA) 112 accidental release prevention. Propylene  
 Clean air act (CAA) 112 regulated flammable substances. Propylene  
 Clean air act (CAA) 112 regulated toxic substances: No products were found.

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: Propylene	115-07-1	100
<b>Supplier notification</b>	: Propylene	115-07-1	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed

**State regulations** : Pennsylvania RTK. Propylene: (environmental hazard, generic environmental hazard)  
 Massachusetts RTK. Propylene  
 New Jersey. Propylene

### Canada

**WHMIS (Canada)** : Class A: Compressed gas  
 Class B-1: Flammable gas  
 CEPA DSL: Propylene

## Section 16. Other information

### United States

**Label Requirements** : FLAMMABLE GAS  
 CONTENTS UNDER PRESSURE.  
 VAPOR MAY CAUSE FLASH FIRE  
 POSSIBLE CANCER HAZARD  
 MAY CAUSE CANCER BASED ON ANIMAL DATA.

### Canada

DICE 01472

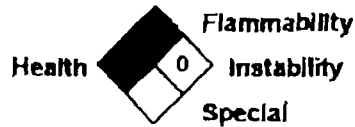
**Propylene**

**bel Requirements** : Class A: Compressed gas  
Class B-1: Flammable gas

**Hazardous Material  
Information System (U.S.A.)** :

Health	1
Fire hazard	4
Reactivity	0
Personal protection	

**National Fire Protection  
Association (U.S.A.)** :

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

DICE 01473

## MATERIAL SAFETY DATA SHEET

EFFECTIVE JANUARY 2004

**Suburban Propane, L.P.****P.O. Box 206****Whippany, NJ 07981-0206**TRANSPORTATION EMERGENCY  
RESPONSE : CHEMTREC (800) 424-9300GENERAL ADDITIONAL INFORMATION:  
SAFETY SERVICES (973) 887-5300

## SECTION 1 - PRODUCT IDENTIFICATION

Product Name: Commercial Odorized Propane  
 Chemical Name: Propane  
 Chemical Family: Petroleum Hydrocarbon  
 Common Names: Liquefied Petroleum Gas, LP-Gas, LPG, Bottle Gas

## SECTION 2 - PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT: -44° F FLASH POINT: -156° F BULK DENSITY: 4.20 lbs. /gal  
 SPECIFIC GRAVITY: LIQUID: 0.504 VAPOR: 1.50  
 GAS VOLUME @ ATM PRESSURE & 60° F (Cu Ft gas/gal. Liquid): 36.38  
 VAPOR PRESSURE: 208 psig @ 100° F (ASTM) SPECIFIC HEAT of LIQUID: 630 BTU/LB. & 60° F  
 FLAMMABILITY LIMITS (% BY VOLUME IN AIR): L.E.L.: 2.1 U.E.L.: 9.5  
 EXPANSION RATIO OF LIQUID TO GAS @ 14.7psia: 1 to 270  
 LIQUID BOIL-OFF TO PROPANE VAPOR ABOVE - 44 F°: 100%

COMPONENTS	CAS NO.	
PROPANE	74-98-6	*
PROPYLENE	115-07-1	*
BUTANES	106-97-8	2.5%
SULPHUR	7704-34-9	185 ppmw with no discoloration of Lead Acetate paper**
RESIDUAL MATTER		0.05 ml after boil off of 100 ml liquid sample **
ODORANT(S)	Various	Odor concentration detectable in air of not over one-fifth of the lower limit of flammability per NFPA 58.
CORROSIVES		Not to exceed #1 grade copper strip test**

PROPANE IS COLORLESS AND ODORLESS.  
 PROPANE IS VERY STABLE

POLYMERIZATION WILL NOT OCCUR

AN ADDED ODORANT GIVES PROPANE A STRONG UNPLEASANT SMELL. Information regarding the effectiveness or intensity of odorants, is set forth in Section 3 below.

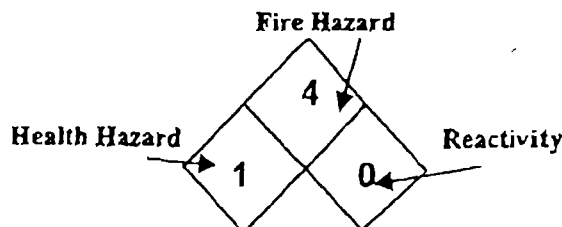
\* Combined constituents comprise a minimum 97.45 % of the total weight under Gas Processors Association (GPA) Standard 2140-97

\*\* Based on American Society of Testing and Materials (ASTM) Standard D1835-91

## SECTION 3 - PHYSICAL HAZARD DATA

## NFPA CLASSES:

- 4 - Severe
- 3 - Serious
- 2 - Moderate
- 1 - Slight
- 0 - Minimal



PROPANE IS FLAMMABLE. PROPANE IS A SIMPLE ASPHYXIAN.

Flammable Gas under pressure - Keep away from sources of ignition such as heat, sparks or flame. Vapor is heavier than air and may collect in low-lying areas.

ITEM NO. 1519278 SAF 5152

DICE 01474

The intensity of odorants may fade over time due to chemical oxidation (in the presence of rust, air or moisture), adsorption or absorption. Underground leaks passing through certain soils may reduce odorant level. If odorant level appears weak, notify propane supplier at once. The ability of people to detect odors can vary greatly. Individuals with nasal perception problems may have a reduced sensitivity to odorants. This condition can be initiated or aggravated by the use of alcohol, tobacco or drugs. These odorants may not impart the warning of the presence of propane in every instance.

#### SECTION 4 - HEALTH HAZARD DATA

Propane is a simple asphyxiant and care must be taken to provide adequate ventilation. Vapors can displace available oxygen for breathing in confined spaces. Odor may not provide adequate warning of potentially hazardous concentrations. Propane is heavier than air and may collect in low-lying areas in the absence of wind or ventilation. Liquid propane can cause freeze burns when brought into direct contact with body parts.

#### SECTION 5 - PRIMARY ROUTES OF ENTRY

**Eye:** Although propane vapor is generally non-irritating, pressurized gas may inflict mechanical injury to the eye. Direct contact with liquid propane can cause freeze burns and resultant swelling of the eye.

**Skin:** Contact with liquid propane can cause freeze burns similar to frostbite.

**Ingestion:** Deemed unlikely.

**Inhalation:** Simple asphyxiant. Extreme over exposure may cause dizziness, headache, disorientation, excitability, fatigue, coughing, vomiting, anesthesia, unconsciousness and death.

#### SECTION 6 - EXPOSURE LIMITS

COMPONENT	THRESHOLD LIMIT VALUE	PERMISSABLE EXPOSURE LIMIT
	(TLV)	(PEL)
PROPANE	NE	1000 ppm
PROPYLENE	NE	NE
BUTANES	NE	800 ppm

PROPANE CAN DISPLACE OXYGEN REQUIRED FOR NORMAL RESPIRATION AND CARE SHOULD BE TAKEN TO PROVIDE ADEQUATE VENTILATION, ESPECIALLY IN CONFINED SPACES AND IN THE ABSENCE OF WIND.

#### SECTION 7 - TOXICOLOGICAL INFORMATION

Propane is not listed in the latest edition of the National Toxicology Program Annual Report on Carcinogens, has not been found to be a potential carcinogen in the latest edition of the International Agency for Research on Cancer Monographs, and has not been identified as a carcinogen by OSHA.

Upon review of USC Title 15 Chapter 23 Section 2601 commonly known as Toxic Substance Control Act (TSCA), Propane has not been found to be a chemical whose manufacture, processing, distribution in commerce, use, or disposal to present an unreasonable risk of injury to health or the environment.

Propane does not contain any Class 1 or Class 2 ozone-depleting chemicals. Propane is not a listed marine pollutant.

The Food and Drug Administration (FDA) has said propane is GRAS (generally recognized as safe) as a direct human food ingredient when used as a propellant, aerating agent and gas.

Normal combustion products of propane are carbon dioxide, nitrogen and water vapor. Incomplete combustion of propane can produce carbon monoxide (CO), a toxic gas, and various aldehydes; an eye and nose irritant. These can be produced both by gas appliances and internal combustion engines.

#### SECTION 8 - SAFE HANDLING AND USE

Propane systems must be tested and proven leak free prior to use. Refer to National Fire Protection Association (NFPA) *National Fuel Gas Code* for further instructions.

Keep away from all sources of ignition, including heat, sparks and open flames. Never check for leaks with a lit match or flame. Use an approved leak detector solution or electronic leak detector.

All piping and equipment used for the handling, storage and use of propane must be specifically designed for that purpose. Refer to NFPA 54 *National Fuel Gas Code* and NFPA 58 *Liquefied Petroleum Gas Code*.

OSHA 29 CFR 1910.110, DOT 49 CFR 172.700 and NFPA 58 all require that persons handling LP gases be specially trained in proper handling and operating procedures, which must be documented by the employer. Only qualified persons should transport, operate, service and/or install propane systems and containers.

Propane vapor is heavier than air and can collect in low-lying areas, especially in the absence of wind or ventilation. Propane is a simple asphyxiant.

Liquid propane can cause freeze burns, and appropriate personal protective equipment should be used whenever handling this product.

Propane cylinders should always be stored in an approved location with relief valves in direct communication with the vapor space, and with service valves closed and plugged when not in use. Refer to NFPA 58 for details of specific storage requirements.

Empty propane containers retain residue and should be treated as if full. Never drop or damage containers. Damaged or corroded and leaking containers should not be utilized. Contact your local Suburban Propane supplier immediately to report any problems. If container service valve fails to operate properly, discontinue use. Never insert any object into the pressure relief valve. Return unused propane to supplier for proper disposal.

## SECTION 9 - EXPOSURE CONTROLS

**Propane is Odorized:** In its natural state, propane is odorless. An odorant has been added as a warning agent to detect its presence. This smell is characterized as "skunk-like" or having a "rotten egg" smell. It is important to recognize the smell of propane. If you are unsure about the smell of odorized propane, contact your local Suburban Propane Customer Service Center for a sample.

**Detection of Odors:** The faint odor of propane may occasionally be present, due to a pilot light outage, or a burner left partially open. Information regarding the effectiveness or intensity of odorants, is set forth in Section 3 above. If, after checking these items, a smell persists, contact your local Suburban Propane immediately.

**Engineering Controls** Provide ventilation in enclosed areas where accumulation of vapors may provide a flammable mixture. Where flammable mixtures may be present, specially designed electrical systems must be used in accordance with NFPA 70 *National Electric Code*.

**Respiratory Protection:** For general use no protection is required. Under emergency conditions, concentrations may be high enough to warrant supplied-air or self-contained breathing apparatus. Under these conditions, a flammable atmosphere is likely and precautions should be taken to avoid ignition.

**Eye Protection:** Approved safety glasses should be used whenever filling and handling propane containers.

**Protective Clothing:** To avoid skin contact with liquid propane, approved gloves that are impervious to propane should be worn along with clothing that will provide protection from liquid propane for the expected duration of exposure.

**Other Protective Equipment:** Safety shoes are recommended when handling cylinders.

## SECTION 10 - EMERGENCY AND FIRST AID PROCEDURES

Contact with liquid propane can cause freeze burns similar to frostbite. Remove saturated clothing, shoes and jewelry immediately. Affected body parts should be gently flushed with or immersed in lukewarm water for 15 minutes. Seek medical attention.



If respiratory symptoms occur, get victim away from source and into fresh air. If breathing difficulties develop, qualified personnel may administer oxygen. If breathing or heartbeat cease, artificial respiration or cardiopulmonary resuscitation should be started immediately. Contact emergency medical responders at once.

If you smell the strong odor of propane indoors: Immediately evacuate and get away from the building. Turn off the supply at the tank or shutoff valve at the meter or where gas enters the building. Call your nearest Suburban Propane Customer Service Center from a neighbor's house, or other phone away from immediate area. Do not use ANY electrical devices, including light switches and telephones. Do not light matches or use any open flame.

**Tampering:** Never tamper with any gas appliances, their controls, or any related equipment. Never force an appliance control valve. All gas appliances and related equipment must be serviced by a qualified service technician. Connecting and disconnecting tanks and cylinders to or from your main gas service should only be performed by a qualified LP-Gas technician.

**If you run out of gas:** If you are a customer, and you suspect you have run out of gas, contact your nearest Suburban Propane Customer Service Center immediately. By running out of gas, a potential safety hazard may exist, which requires us to perform a Leak Test before your system can be returned to service.

**Know how to shut off the gas in event of an emergency:** It is important to know the location of the tank or cylinder and shutoff valve(s), if present in your system. The service valve can be turned off by turning the knob clockwise.

**In the event of an accidental release or spill out of doors, these actions should be taken:** Evacuate immediate area. Eliminate all possible sources of ignition including heat, sparks and open flame. Provide maximum ventilation and shut off source(s) of leak if possible to do so safely. If cylinder or container is leaking, contact the nearest Suburban Propane supplier or local fire department. Never enter a vapor (white) cloud.

**Release without fire:** Use a "fogging" hose stream of water to break up and dissipate propane into the atmosphere. Stay uphill and upwind of release at all times.

**Release with fire:** Apply a direct stream of water to container in order to prevent overheating. Do not attempt to extinguish flame until source of leak is shut off. Water spray or "fog" should be used for adjacent areas and to dissipate liquid propane to atmosphere.

**Extinguishing Media:** Class B fire-extinguishing media such as Halon, CO<sub>2</sub>, or dry chemical can be used. Water spray or fog is appropriate for surrounding areas. Do not extinguish flame until source of gas is shut off. Only those with specialized training should attempt fire fighting. For further information, refer to NPGA "Propane Emergencies" Text #7220.

## SECTION 11 - OTHER INFORMATION

This Material Safety Data Sheet, issued January 2004, was prepared by Safety Services of Suburban Propane and supersedes June 2001.

## SECTION 12 - CONTACT INFORMATION

For further information write to:

SUBURBAN PROPANE, L.P.  
Safety Services  
240 Route 10 West  
P.O. Box 206  
Whippany, NJ 07981-0206  
Or call: (973) 887-5300

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# MATERIAL SAFETY DATA SHEET FOR CANTESCO® FORMULA 300

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : CANTESCO® 300 REG TEMP TYPE I / REG TEMP LPGAS  
 PRODUCT IDENTIFIER : LEAK DETECTION COMPOUND  
 PRODUCT USE : LEAK DETECTION COMPOUND  
 ITEM CODE(S) : 300-04, 300-08, 300-1G, 300-5G, 300-DR, LPI-08  
 300-115, 300-230, 300-4L, 300-20L, LPI-230  
 UPC BAR CODE(S) : 10225, 10001, 10230, 10235, 10240, 10190  
 FORMULA NAME : 300  
 FORMULA CODE : 57008  
 MSDS CODE : 20  
 E-MAIL ADDRESS : [MSDS@CANTESCO.COM](mailto:MSDS@CANTESCO.COM)  
 WEB ADDRESS : [WWW.CANTESCO.COM](http://WWW.CANTESCO.COM)  
 USA ADDRESS : CANTESCO CORPORATION USA  
 PMB 023 - 60 INDUSTRIAL PARKWAY  
 CHEEKTOWAGA, NY 14227  
 PH (716) 693-8206  
 FAX (716) 693-8373  
 CANADIAN ADDRESS : CANTESCO CORPORATION  
 13 - 5200 DIXIE ROAD  
 MISSISSAUGA, ON L4W 1E4  
 PH (905) 624-5463  
 FAX (905) 624-2840  
 PREPARED BY : QUALITY MANAGER  
 TELEPHONE : (905) 624-5463  
 EMERGENCY TELEPHONE : (613) 996-6666 (CANUTEC - Call collect)  
 PREPARATION DATE : MARCH 01, 2006  
 OSHA REGULATORY STATUS : NOT REGULATED  
 WHMIS CLASSIFICATION : NOT REGULATED

## SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS	CAS	OSHA PEL	ACGIH TLV	LD50 SPECIES/ROUTE	LC50 SPECIES/ROUTE	%WT
NONE						

## SECTION 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

EYE: In accordance with FHSA/CPSC Guidelines product is not an eye irritant.  
 SKIN: In accordance with FHSA/CPSC Guidelines product is not a primary dermal irritant.  
 INGESTION: Effect of ingestion unknown, but major toxicity is not expected to occur.  
 INHALATION: No health effects anticipated from vapour.  
 EFFECTS OF ACUTE EXPOSURE: N/A  
 EFFECTS OF CHRONIC EXPOSURE: No serious long-term health effects are anticipated.  
 OTHER IMPORTANT HAZARDS: None  
 SUGGESTED HMIS RATING: HEALTH | 1 | FLAMMABILITY | 0 | REACTIVITY | 0 | SPECIAL - NONE

EFFECTIVE: MARCH 01, 2006

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DICE 01478

#### **SECTION 4. FIRST AID MEASURES**

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INHALATION: If someone has difficulty breathing after exposure to product, remove him or her to fresh air immediately. If breathing difficulty persists, contact a doctor

INGESTION: If swallowed, do not induce vomiting. Get medical attention right away.

EYE CONTACT: For eye contact, flush with water for at least 15 minutes.

SKIN CONTACT: For skin contact, wash with soap and water.

#### **SECTION 5. FIRE FIGHTING MEASURES**

---

CONDITIONS OF FLAMMABILITY: Not flammable under normal conditions. Product is water based

MEANS OF EXTINCTION: N/A

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

FLASH POINT / DETERMINATION: None

UPPER FLAMMABLE LIMIT: None

LOWER FLAMMABLE LIMIT: None

AUTO-IGNITION TEMPERATURE: Not known.

HAZARDOUS COMBUSTION PRODUCTS: If water component is driven off, and residue ignited, this product may release carbon dioxide, carbon monoxide, and oxides of nitrogen and sulphur.

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT: Not sensitive.

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE: Will not be ignited by exposure to static.

#### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

---

LEAK / SPILL RESPONSE: Ensure that all spilled material is promptly cleaned up. Absorb with inert material such as vermiculite or paper towels, place in a chemical waste container for eventual disposal. Seal and label the container as waste. Dispose of in accordance with all federal, state, provincial and local regulations.

SPECIAL INSTRUCTIONS: Avoid contact with eyes, or prolonged contact with skin. Wash thoroughly after handling. Keep away from food, and out of reach of small children

#### **SECTION 7. HANDLING AND STORAGE**

---

HANDLING PROCEDURES / EQUIPMENT: Keep containers closed when not in use.

STORAGE REQUIREMENTS: Store in a cool, dry area away from water-reactive chemicals such as sodium and potassium.

---

EFFECTIVE: MARCH 01, 2006

(C:\MSDS ENGLISH\300 ENGLISH.06) PAGE 2 OF 5

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION: Safety glasses with side shields, or chemical splash goggles, are recommended when handling this product.

SKIN PROTECTION: Protective gloves not normally required. People with sensitive skin may prefer to wear water-proof gloves, such as rubber or neoprene, to avoid skin contact.

ENGINEERING CONTROLS: No special ventilation requirements. Special respiratory protection is not required for normal conditions of use of this product.

EXPOSURE GUIDELINE LEVELS: N/Ap.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	: Liquid
ODOR AND APPEARANCE	: No odor, clear liquid
ODOR THRESHOLD	: N/Ap
SPECIFIC GRAVITY (H <sub>2</sub> O=1)	: ~1.0
VAPOUR PRESSURE (mm HG)	: Approximately that of water (24 mm Hg)
VAPOUR DENSITY (AIR=1)	: 0.610
EVAPORATION RATE (BA=1)	: 1.0
BOILING POINT (°F)	: Approximately 200°F (93°C)
FREEZING POINT (°F)	: Approximately 27°F (-3°C)
pH	: 7.0
COEFFICIENT OF WATER/OIL DISTRIBUTION	: N/Ap
DENSITY	: .998
SOLUBILITY IN WATER	: Soluble
% VOLATILE BY VOLUME	: N/Av
VOC'S	: Less than 1

## SECTION 10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID: Excessive heating.

MATERIALS TO AVOID (INCOMPATIBILITIES): Water-reactive chemicals such as sodium or potassium.

CONDITIONS OF REACTIVITY: N/Av

HAZARDOUS DECOMPOSITION BYPRODUCTS: If heated until water is driven off and decomposition begins, this product may release carbon dioxide, carbon monoxide, and oxides of nitrogen and sulphur.

HAZARDOUS POLYMERIZATION: Will not occur.

## SECTION 11. TOXICOLOGICAL INFORMATION

LD50: N/Av

LC50: N/Av

ROUTES OF ENTRY: INHALATION[N] EYE CONTACT[Y] SKIN CONTACT[N] SKIN ABSORPTION[N] INGESTION[N]

EXPOSURE LIMITS: N/Av

IRRITANCY OF PRODUCT: Not known to be irritating.

SENSITIZATION TO PRODUCT / MEDICAL CONDITIONS AGGRAVATED: Not known to cause allergies.

CARCINOGENICITY: No ingredients known to be carcinogens.

TERATOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICITY: No effects determined.

TOXICOLOGICAL DATA: N/Ap

EFFECTIVE: MARCH 01, 2006

(C:\MSDS ENGLISH\300 ENGLISH.06) PAGE 3 OF 5

DICE 01480

## SECTION 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS Not known Not expected to have serious environmental effects in small quantities.

IMPORTANT ENVIRONMENTAL CHARACTERISTICS None known. Product is water-based

AQUATIC TOXICITY: Not known. Expected to have minimal toxicity.

## SECTION 13. DISPOSAL CONSIDERATIONS

Place in a sealed container and label as waste Place in a safe area, and comply with all federal, state, provincial and local regulations for disposal.

## SECTION 14. TRANSPORTATION INFORMATION

SPECIAL SHIPPING INFORMATION : None

DOT HM-181 SHIPPING INFORMATION

PROPER SHIPPING NAME : Not regulated

HAZARD CLASS OR DIVISION : none

UN NUMBER : none

PACKAGING GROUP : none

LABEL(S) REQUIRED : none

TDG SHIPPING INFORMATION

TDG SHIPPING NAME : Not regulated

TDG CLASSIFICATION : none

UN NUMBER : none

PACKING GROUP : none

LABEL(S) REQUIRED : none

NAERG : none

EMERGENCY TELEPHONE NUMBER : (613) 996-6666

INTERNATIONAL TRANSPORT INFORMATION

PROPER SHIPPING NAME : Not regulated

CLASS OR DIVISION : none

SUBSIDIARY RISK : none

HAZARDOUS LABEL(S) : none

PACKAGING GROUP : none

UN OR ID NUMBER : none

## SECTION 15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA): The product on this MSDS, or all of its components, is listed under TSCA.

SARA TITLE III, SECTION 313: The following ingredients are subject to the reporting requirements of section 313 of Title III of the Superfund and Reauthorization Act of 1986 and 40 CFR Part 372: None

CLEAN AIR ACT (CAA): The following ingredients appear on the List of Hazardous Air Pollutants (HAP – 42 USC 7412, Title I, Part A, p112): None

CLEAN WATER ACT (CWA): The following ingredients appear on the CWA List of Hazardous Substances (40 CFR 116.4): None

CALIFORNIA PROPOSITION 65: The following ingredients appear on the Proposition 65 list(s): None

CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

DOMESTIC SUBSTANCES LIST (DSL): The product on this MSDS, or all of its components, is included in the DSL.

EFFECTIVE: MARCH 01, 2006

(C:\MSDS ENGLISH\300 ENGLISH.06) PAGE 4 OF 5

DICE 01481

**SECTION 16. OTHER INFORMATION**

N/E Not Established  
N/Av Not Available  
N/Ap Not Applicable  
ARC International Agency for Research on Cancer  
ACGIH American Conference of Governmental Industrial Hygienists  
NIOSH National Institute for Occupational Health and Safety  
TLV-TWA Threshold Limit Values, Time Weighted Average  
NAERG North American Emergency Response Guidebook  
WHMIS Workplace Hazardous Materials Information System

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ADDITIONAL INFORMATION REPLY FORM – PLEASE FAX OR EMAIL BACK

**PLEASE ADD ME TO YOUR MSDS DATA BASE FOR PRODUCT UPDATES:**

NAME			TITLE / DEPT	
FIRM				
ADDRESS				
CITY				
STATE / PROV		ZIP / POSTAL CODE		
PHONE		FAX		
EMAIL				
ADDRESS				

**PLEASE SEND ME INFORMATION ON THE FOLLOWING CANTESCO® PRODUCTS:**

WELDING CHEMICAL PRODUCTS	
AUTOMOTIVE, TRUCK & BUS FLEET WASH PRODUCTS	
CONSUMER CLEANING PRODUCTS	
INDUSTRIAL & INSTITUTIONAL CLEANERS	
HVAC CHEMICAL PRODUCTS	

EFFECTIVE: MARCH 01, 2006

(C:\MSDS ENGLISH\300 ENGLISH.06) PAGE 5 OF 5

DICE 01482

**Material Safety Data Sheet**

Version 3.0  
Revision Date 07/14/2007  
Print Date 09/13/2007

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : **2-Methylbutane**

Product Number : 59070  
Brand : Fluka

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Isopentane

Formula : C<sub>5</sub>H<sub>12</sub>  
Molecular Weight : 72.15 g/mol

CAS-No	EC-No.	Index-No.	Concentration [%]
<b>Isopentane</b>			
78-78-4	201-142-8	601-006-00-1	-

**3. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

Flammable Liquid  
Delayed target organ effects

**Target Organs**

Central nervous system, Heart, Liver

**HMIS Classification**

Health Hazard. 0

Chronic Health Hazard. \*

Flammability 4

Physical hazards 0

**NFPA Rating**

Health Hazard: 0

Fire: 4

Reactivity Hazard. 0

**Potential Health Effects****DICE 01483**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
<b>Eyes</b>	May cause eye irritation.
<b>Ingestion</b>	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed

#### 4. FIRST AID MEASURES

##### General advice

Consult a physician Show this safety data sheet to the doctor in attendance Move out of dangerous area

##### If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician

##### In case of skin contact

Wash off with soap and plenty of water Consult a physician.

##### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

##### If swallowed

Do NOT induce vomiting Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### 5. FIRE-FIGHTING MEASURES

##### Flammable properties

Flash point -51 °C (-60 °F) - closed cup

Ignition temperature 420 °C (788 °F)

##### Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

##### Specific hazards

Flash back possible over considerable distance. Container explosion may occur under fire conditions. Vapours may form explosive mixture with air.

##### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

##### Further information

Use water spray to cool unopened containers.

#### 6. ACCIDENTAL RELEASE MEASURES

##### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas Ensure adequate ventilation. Remove all sources of ignition Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

##### Environmental precautions

Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided. Do not let product enter drains.

##### Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).



## 7. HANDLING AND STORAGE

### Handling

Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

### Storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Refrigerate before opening. Handle and open container with care.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Isopentane	78-78-4	TWA	600 ppm	1998-09-01	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004: Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)
Remarks	1998 Adoption.				

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves.

#### Eye protection

Safety glasses

#### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid, clear
Colour	colourless

**DICE 01485**

**Safety data**

pH	no data available
Melting point	no data available
Boiling point	28 - 29 °C (82 - 84 °F) at 1,013 hPa (760 mmHg)
Flash point	-51 °C (-60 °F) - closed cup
Ignition temperature	420 °C (788 °F)
Lower explosion limit	1.4 %(V)
Upper explosion limit	8.3 %(V)
Vapour pressure	769.92 hPa (577.49 mmHg) at 20 °C (68 °F) 2,355.26 hPa (1,766.59 mmHg) at 55 °C (131 °F)
Density	0.620 g/cm <sup>3</sup>
Water solubility	no data available
Vapour density	2.49 - (Air = 1.0)

**10. STABILITY AND REACTIVITY****Storage stability**

Stable under recommended storage conditions.

**Conditions to avoid**

Heat, flames and sparks.

**Materials to avoid**

Oxidizing agents

**Hazardous decomposition products**

**Hazardous decomposition products formed under fire conditions.**

Carbon oxides

**Hazardous reactions**

Vapours may form explosive mixture with air.

**11. TOXICOLOGICAL INFORMATION****Acute toxicity**

no data available

**Irritation and corrosion**

no data available

**Sensitisation**

no data available

**Chronic exposure**

no data available

**DICE 01486**

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Potential Health Effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
<b>Eyes</b>	May cause eye irritation.
<b>Ingestion</b>	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed
<b>Target Organs</b>	Central nervous system, Heart, Liver,

## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

no data available

### Ecotoxicity effects

no data available

### Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 13. DISPOSAL CONSIDERATIONS

### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

### Contaminated packaging

Dispose of as unused product

## 14. TRANSPORT INFORMATION

### DOT (US)

UN-Number: 1265 Class: 3 Packing group: I  
Proper shipping name: Pentanes

### IMDG

UN-Number: 1265 Class: 3 Packing group: I EMS-No: F-E, S-D  
Proper shipping name: PENTANES  
Marine pollutant: No

### IATA

UN-Number: 1265 Class: 3 Packing group: I  
Proper shipping name: Pentanes

## 15. REGULATORY INFORMATION

### OSHA Hazards

Flammable Liquid, Delayed target organ effects

### TSCA Status

On TSCA Inventory

### DSL Status

All components of this product are on the Canadian DSL list.

**DICE 01487**

### SARA 302 Components

SARA 302. No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313 This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Isopentane

CAS-No.  
78-78-4

Revision Date  
1989-12-01

**Pennsylvania Right To Know Components**

Isopentane

CAS-No.  
78-78-4

Revision Date  
1989-12-01

**New Jersey Right To Know Components**

Isopentane

CAS-No.  
78-78-4

Revision Date  
1989-12-01

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

**16. OTHER INFORMATION****Further information**

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**DICE 01488**

## MATERIAL SAFETY DATA SHEET

Date Printed: 09/13/2007

Date Updated: 02/01/2006

Version: 1.3

## Section 1 - Product and Company Information

Product Name: POLY (ISOBUTYLENE) STANDARD 2'500, FOR GPC  
Product Number: 81566  
Brand: FLUKA  
Company: Sigma-Aldrich  
Address: 3050 Spruce Street  
SAINT LOUIS MO 63103 US  
Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
POLY (ISOBUTYLENE) STANDARD 10'000, FOR GPC	9003-27-4	No

Formula: C<sub>4</sub>H<sub>8</sub>  
Synonyms: Polyisobutylene  
RTECS Number: UD1010000

## Section 3 - Hazards Identification

## HMIS RATING

HEALTH: 0  
FLAMMABILITY: 0  
REACTIVITY: 0

## NFPA RATING

HEALTH: 0  
FLAMMABILITY: 0  
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

## INHALATION EXPOSURE

If inhaled, remove to fresh air.

## DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

## EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

---

## Section 5 - Fire Fighting Measures

---

### CONDITIONS OF FLAMMABILITY

Under fire conditions, material may decompose to form flammable and/or explosive mixtures in air.

### FLASH POINT

N/A

### AUTOIGNITION TEMP

N/A

### FLAMMABILITY

N/A

### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

---

## Section 6 - Accidental Release Measures

---

### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

---

## Section 7 - Handling and Storage

---

### HANDLING

User Exposure: Use protective clothing, gloves, and mask. Do not get in eyes, on skin, on clothing. Do not breathe dust.

### STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

---

## Section 8 - Exposure Controls / PPE

---

### ENGINEERING CONTROLS

Mechanical exhaust required. Safety shower and eye bath.

### PERSONAL PROTECTIVE EQUIPMENT

Eye: Chemical safety goggles.

### GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

---

## Section 9 - Physical/Chemical Properties

---

### Appearance

Color: Faintly yellow

Form: Clear liquid

**DICE 01490**

Property	Value	At Temperature or Pressure
Molecular Weight	N/A	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	0.92 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	1.5045	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

---

#### Section 10 - Stability and Reactivity

---

##### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

##### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

##### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

#### Section 11 - Toxicological Information

---

##### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Eye Contact: May cause eye irritation.

Multiple Routes: May be harmful by inhalation, ingestion, or skin absorption.

##### SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

---

#### Section 12 - Ecological Information

---

No data available.

---

#### Section 13 - Disposal Considerations

**DICE 01491**

---

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

---

Section 14 - Transport Information

---

DOT

Proper Shipping Name: None

- Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

---

Section 15 - Regulatory Information

---

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

---

Section 16 - Other Information

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DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

DICE 01492



## SIGMA-ALDRICH

## MATERIAL SAFETY DATA SHEET

Date Printed: 09/13/2007

Date Updated: 01/30/2006

Version: 1.5

## Section 1 - Product and Company Information

Product Name: PENTANE, ANHYDROUS, 99+%  
Product Number: 236705  
Brand: ALDRICH  
Company: Sigma-Aldrich  
Address: 3050 Spruce Street  
SAINT LOUIS MO 63103 US  
Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
N-PENTANE	109-66-0	No

Formula: C5H12  
Synonyms: Amyl hydride \* Pentan (Polish) \* Pentane  
(ACGIH:OSHA) \* Pentanen (Dutch) \* Pentani  
(Italian) \* Skellysolve A  
RTECS Number: RZ9450000

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Flammable (USA) Extremely Flammable (EU). Harmful. Dangerous for the environment.

Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to eyes, respiratory system and skin. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

Target organ(s): Nerves. Heart.

## HMIS RATING

HEALTH: 1\*

FLAMMABILITY: 4

REACTIVITY: 0

## NFPA RATING

HEALTH: 1

FLAMMABILITY: 4

REACTIVITY: 0

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

## ORAL EXPOSURE

DICE 01493

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

---

### Section 5 - Fire Fighting Measures

---

#### FLAMMABLE HAZARDS

Flammable Hazards: Yes

#### EXPLOSION HAZARDS

Vapor may travel considerable distance to source of ignition and flash back. Container explosion can occur under fire conditions. In advanced or massive fires the area should be evacuated and the fire should be fought from a remote explosion-resistant location.

#### FLASH POINT

- 57.0 °F - 49.0 °C Method: closed cup

#### EXPLOSION LIMITS

Lower: 1.4 % Upper: 8.3 %

#### AUTOIGNITION TEMP

260 °C

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

---

### Section 6 - Accidental Release Measures

---

#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

**DICE 01494**

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy

rubber gloves.

#### METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

---

### Section 7 - Handling and Storage

---

#### HANDLING

User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Open carefully.

#### STORAGE

Suitable: Keep container closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Store under nitrogen.

#### SPECIAL REQUIREMENTS

May develop pressure. Refrigerate before opening.

---

### Section 8 - Exposure Controls / PPE

---

#### ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.  
Hand: Compatible chemical-resistant gloves.  
Eye: Chemical safety goggles.

#### GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

#### EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	600 PPM
USA	MSHA Standard-air	TWA	500 PPM (1475 MG/M3)
USA	OSHA.	PEL	8H TWA 1000 PPM (2950 MG/M3)
New Zealand	OEL		
Remarks:	check ACGIH TLV		
USA	NIOSH	TWA	120 PPM
		Ceiling	co610 PPM/15M

#### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1800 MG/M3
Poland		NDSch	2300 MG/M3
Poland		NDSP	-

---

### Section 9 - Physical/Chemical Properties

---

DICE 01495

Appearance

Physical State: Clear liquid

Color: Colorless

Property	Value	At Temperature or Pressure
Molecular Weight	72.15 AMU	
pH	N/A	
BP/BP Range	35.0 - 36.0 °C	
MP/MP Range	- 130.0 °C	
Freezing Point	N/A	
Vapor Pressure	434.28 mmHg	20 °C
Vapor Density	2.48 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.626 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	< 0.01 %	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	Log Kow: 3.39	
Decomposition Temp.	N/A	
Flash Point	- 57.0 °F - 49.0 °C	Method: closed cup
Explosion Limits	Lower: 1.4 % Upper: 8.3 %	
Flammability	N/A	
Autoignition Temp	260 °C	
Refractive Index	1.358	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

---

## Section 10 - Stability and Reactivity

---

### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

## Section 11 - Toxicological Information

---

### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

### TARGET ORGAN(S) OR SYSTEM(S)

Lungs. Heart. Central nervous system.

DICE 01496

## SIGNS AND SYMPTOMS OF EXPOSURE

Contact with eyes can cause redness, tearing, and blurred vision. Prolonged or repeated contact with skin can cause defatting and dermatitis. CNS depression. Damage to the lungs.

## TOXICITY DATA

Inhalation

Rat

364,000 mg/m3

LC50

Intravenous

Mouse

446 MG/KG

LD50

---

## Section 12 - Ecological Information

---

### ACCUMULATION

Bioaccumulation Potential: Indication of bioaccumulation.

### ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia

Species: Daphnia magna

Time: 48 h

Value: 9.74 mg/l

### ADDITIONAL RESULTS/DATA FROM RELEVANT SCIENTIFIC EXPERIMENTS

Because of harmful effects on water organisms, this material should not be introduced into drains. Avoid contamination of the environment

---

## Section 13 - Disposal Considerations

---

### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

---

## Section 14 - Transport Information

---

### DOT

Proper Shipping Name: Pentanes

UN#: 1265

Class: 3

Packing Group: Packing Group II

Hazard Label: Flammable liquid

PIH: Not PIH

### IATA

Proper Shipping Name: Pentanes

IATA UN Number: 1265

Hazard Class: 3

Packing Group: II

---

## Section 15 - Regulatory Information

---

**DICE 01497**

#### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: F+-Xn-N

Indication of Danger: Extremely Flammable. Harmful. Dangerous for the environment.

R: 12-51/53-65-66-67

Risk Statements: Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

S: 9-16-29-33-61-62

Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains. Take precautionary measures against static discharges. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

#### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Extremely Flammable (EU). Harmful. Dangerous for the environment.

Risk Statements: Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Irritating to eyes, respiratory system and skin. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.

Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains. Take precautionary measures against static discharges. Avoid release to the environment. Refer to special instructions/safety data sheets. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

US Statements: Target organ(s): Nerves. Heart.

#### UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

#### CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

---

#### Section 16 - Other Information

---

#### DISCLAIMER

For R&D use only. Not for drug, household or other uses.

**DICE 01498**

#### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice

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DICE 01499

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**DICE 01500**



**Material Safety Data Sheet**

Version 3.0  
Revision Date 07/15/2007  
Print Date 09/13/2007

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : **Heptane**

Product Number : 34936  
Brand : Riedel

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C<sub>7</sub>H<sub>16</sub>  
Molecular Weight : 100.21 g/mol

CAS-No.	EC-No.	Index-No.	Concentration [%]
<b>Heptane</b>			
142-82-5	205-563-8	601-008-00-2	-

**3. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

Flammable Liquid

**Target Organs**

Central nervous system, Heart, Lungs, ears

**HMIS Classification**

Health Hazard: 1

Chronic Health Hazard: \*

Flammability: 3

Physical hazards: 0

**NFPA Rating**

Health Hazard: 2

Fire: 3

Reactivity Hazard: 0

**Potential Health Effects****Inhalation**

May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.

**Skin**

May be harmful if absorbed through skin. May cause skin irritation.

**Eyes**  
**Ingestion**

May cause eye irritation.  
Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.

#### 4. FIRST AID MEASURES

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### 5. FIRE-FIGHTING MEASURES

**Flammable properties**

Flash point -4.0 °C (24.8 °F) - closed cup

Ignition temperature 223 °C (433 °F)

**Suitable extinguishing media**

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**Specific hazards**

Flash back possible over considerable distance.

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Further information**

Use water spray to cool unopened containers. In case of fire: Evacuate area and fight fire remotely due to the risk of explosion.

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up**

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

#### 7. HANDLING AND STORAGE

**Handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**DICE 01502**

**Storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place. Store under inert gas.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Update	Basis
Heptane	142-82-5	TWA	400 ppm 1,640 mg/m <sup>3</sup>	1994-09-01	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004: Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)
		STEL	500 ppm 2,050 mg/m <sup>3</sup>	1994-09-01	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004: Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)
		TWA	400 ppm 1,600 mg/m <sup>3</sup>	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
		STEL	500 ppm 2,000 mg/m <sup>3</sup>	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
		TWA	500 ppm 2,000 mg/m <sup>3</sup>	1993-06-30	US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants.

**DICE 01503**

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

For prolonged or repeated contact use protective gloves.

### Eye protection

Safety glasses

### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid
Colour	no data available

### Safety data

pH	no data available
Melting point	-91.0 °C (-131.8 °F)
Boiling point	98.0 - 99.0 °C (208.4 - 210.2 °F)
Flash point	-4.0 °C (24.8 °F) - closed cup
Ignition temperature	223 °C (433 °F)
Lower explosion limit	1.1 %(V)
Upper explosion limit	7 %(V)
Vapour pressure	110.7 hPa (83.0 mmHg) at 37.7 °C (99.9 °F) 53.3 hPa (40.0 mmHg) at 20.0 °C (68.0 °F)
Density	0.68 g/cm <sup>3</sup>
Water solubility	insoluble
Partition coefficient: n-octanol/water	log Pow: > 3.00

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

Strong oxidizing agents

DICE 01504

### Hazardous decomposition products

#### Hazardous decomposition products formed under fire conditions.

Carbon oxides

### Hazardous reactions

Vapours may form explosive mixture with air.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LC50 Inhalation - rat - 4 h - 103,000 mg/m<sup>3</sup>

### Irritation and corrosion

no data available

### Sensitisation

no data available

### Chronic exposure

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

### Signs and Symptoms of Exposure

Prolonged or repeated exposure to skin causes defatting and dermatitis., Central nervous system depression, narcosis, Damage to the lungs.

### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.
<b>Ingestion</b>	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.
<b>Target Organs</b>	Central nervous system, Heart, Lungs, ears,

## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

### Ecotoxicity effects

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 4.00 mg/l - 24 h
	LC50 - other fish - 375 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 1.50 mg/l - 48 h

### Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do not empty into drains. Avoid release to the environment.

**DICE 01505**

### 13. DISPOSAL CONSIDERATIONS

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

### 14. TRANSPORT INFORMATION

#### DOT (US)

UN-Number: 1206 Class: 3 Packing group: II  
Proper shipping name: Heptanes

#### IMDG

UN-Number: 1206 Class: 3 Packing group: II EMS-No: F-E, S-D  
Proper shipping name: HEPTANES  
Marine pollutant: No

#### IATA

UN-Number: 1206 Class: 3 Packing group: II  
Proper shipping name: Heptanes

### 15. REGULATORY INFORMATION

#### OSHA Hazards

Flammable Liquid

#### TSCA Status

On TSCA Inventory

#### DSL Status

All components of this product are on the Canadian DSL list.

#### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 311/312 Hazards

Fire Hazard

#### Massachusetts Right To Know Components

Heptane

CAS-No.	Revision Date
142-82-5	1989-12-01

#### Pennsylvania Right To Know Components

Heptane

CAS-No.	Revision Date
142-82-5	1989-12-01

#### New Jersey Right To Know Components

Heptane

CAS-No.	Revision Date
142-82-5	1989-12-01

#### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

DICE 01506

## 16. OTHER INFORMATION

### Further information

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DICE 01507

## SIGMA-ALDRICH

## MATERIAL SAFETY DATA SHEET

Date Printed: 09/13/2007

Date Updated: 02/02/2006

Version 1.4

## Section 1 - Product and Company Information

Product Name ETHANETHIOL, 97%  
Product Number E3708  
Brand ALDRICH

Company Sigma-Aldrich  
Address 3050 Spruce Street  
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
ETHANETHIOL	75-08-1	No

Formula C2H6S

Synonyms Aethanethiol (German) \* Aethylmercaptan (German)  
\* Etantiolo (Italian) \* Ethaanthiol (Dutch) \*  
Ethanethiol (OSHA) \* Ethyl hydrosulfide \*  
Ethylmercaptan (Dutch) \* Ethyl mercaptan  
(ACGIH:OSHA) \* Ethylmerkaptan (Czech) \* Ethyl  
sulfhydrate \* Ethyl thioalcohol \* Etilmercaptano  
(Italian) \* LPG ethyl mercaptan 1010 \*  
Thioethanol \* Thioethyl alcohol

RTECS Number: KI9625000

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU). Harmful. Dangerous for the environment.

Harmful by inhalation and if swallowed. Irritating to eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

May develop pressure. Stench.

## HMIS RATING

HEALTH: 2

FLAMMABILITY: 4

REACTIVITY: 0

## NFPA RATING

HEALTH: 2

FLAMMABILITY: 4

REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

DICE 01508



#### ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

#### EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

---

### Section 5 - Fire Fighting Measures

---

#### FLAMMABLE HAZARDS

Flammable Hazards: Yes

#### EXPLOSION HAZARDS

Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

#### FLASH POINT

- 49.0 °F - 45.0 °C Method: closed cup

#### EXPLOSION LIMITS

Lower: 2.8 % Upper: 18.2 %

#### AUTOIGNITION TEMP

299 °C

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.  
Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

---

### Section 6 - Accidental Release Measures

---

#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

**DICE 01509**

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

## METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

---

## Section 7 - Handling and Storage

---

### HANDLING

User Exposure: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

### STORAGE

Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame.

Incompatible Materials: Avoid contact with metals.

### SPECIAL REQUIREMENTS

Refrigerate before opening.

---

## Section 8 - Exposure Controls / PPE

---

### ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

### GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

### EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.5 PPM
USA	MSHA Standard-air	TWA	0.5 PPM (1 MG/M3)
USA	OSHA.	PEL	CL 10 PPM (25 MG/M3)
New Zealand	OEL		
Remarks:	check ACGIH TLV		
USA	NIOSH	Ceiling	co0.5 PPM

### EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	1 MG/M3
Poland		NDSCh	2 MG/M3
Poland		NDSP	-

---

## Section 9 - Physical/Chemical Properties

---

Appearance                      Physical State: Clear liquid  
                                    Color: Colorless  
                                    Odor: Stench.

DICE 01510

Property	Value	At Temperature or Pressure
Molecular Weight	62.13 AMU	
pH	N/A	
BP/BP Range	34.0 - 37.0 °C	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	439.967 mmHg	20 °C
Vapor Density	2.1 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.84 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	- 49.0 °F - 45.0 °C	Method: closed cup
Explosion Limits	Lower: 2.8 % Upper: 18.2 %	
Flammability	N/A	
Autoignition Temp	299 °C	
Refractive Index	1.43	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

---

## Section 10 - Stability and Reactivity

---

### STABILITY

Materials to Avoid: Oxidizing agents, Metals.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

## Section 11 - Toxicological Information

---

### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. Harmful if inhaled.

Ingestion: Harmful if swallowed.

### SIGNS AND SYMPTOMS OF EXPOSURE

Prolonged exposure can cause: Nausea, headache, and vomiting.

Exposure can cause: Narcotic effect.

### TOXICITY DATA

**DICE 01511**

Oral  
Rat  
682 mg/kg  
LD50

Remarks: Behavioral:Muscle weakness. Behavioral:Ataxia. Lungs,  
Thorax, or Respiration:Cyanosis.

Inhalation  
Rat

4,420 ppm

LC50

Remarks: Lungs, Thorax, or Respiration:Cyanosis.  
Behavioral:Excitement. Peripheral Nerve and Sensation:Spastic  
paralysis with or without sensory change.

Intraperitoneal

Rat

226 MG/KG

LD50

Remarks: Behavioral:Muscle weakness. Behavioral:Ataxia. Lungs,  
Thorax, or Respiration:Cyanosis.

Inhalation

Mouse

2,770 ppm

LC50

Remarks: Lungs, Thorax, or Respiration:Cyanosis.  
Behavioral:Change in motor activity (specific assay).  
Behavioral:Excitement.

#### IRRITATION DATA

Skin

Rabbit

500 mg

24H

Remarks: Mild irritation effect

Eyes

Rabbit

84 mg

Eyes

Rabbit

100 mg

24H

Remarks: Moderate irritation effect

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#### Section 12 - Ecological Information

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No data available.

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#### Section 13 - Disposal Considerations

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DICE 01512

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#### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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Contact a licensed professional waste disposal service to dispose  
of this material. Burn in a chemical incinerator equipped with an  
afterburner and scrubber but exert extra care in igniting as this  
material is highly flammable. Observe all federal, state, and  
local environmental regulations.

---

## Section 14 - Transport Information

### DOT

Proper Shipping Name: Ethyl mercaptan  
UN#: 2363  
Class: 3  
Packing Group: Packing Group I  
Hazard Label: Flammable liquid  
PIH: Not PIH

### IATA

Proper Shipping Name: Ethyl mercaptan  
IATA UN Number: 2363  
Hazard Class: 3  
Packing Group: I  
Not Allowed - Aircraft: Cargo aircraft only. Not permitted on passenger aircraft.

## Section 15 - Regulatory Information

### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: F-Xn-N  
Indication of Danger: Highly Flammable. Harmful. Dangerous for the environment.  
R: 11-20-50/53  
Risk Statements: Highly flammable. Harmful by inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S: 16-25-60-61  
Safety Statements: Keep away from sources of ignition - no smoking. Avoid contact with eyes. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU). Harmful. Dangerous for the environment.  
Risk Statements: Harmful by inhalation and if swallowed. Irritating to eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.  
US Statements: May develop pressure. Stench.

### UNITED STATES REGULATORY INFORMATION

SARA LISTED: No  
TSCA INVENTORY ITEM: Yes

### CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.  
DSL: Yes  
NDSL: No

**DICE 01513**

## Section 16 - Other Information

DISCLAIMER —

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

DICE 01514



## Material Safety Data Sheet

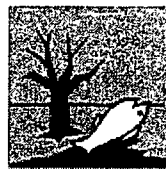
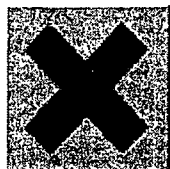
2-Methylbutane, spectrophotometric grade, 99+%

**Section 1 - Chemical Product and Company Identification**

**MSDS Name:** 2-Methylbutane, spectrophotometric grade, 99+%  
**Catalog Numbers:** 16784-0000, 16784-0010, 16784-0250, 16784-2500  
**Synonyms:** Isopentane  
**Company Identification:** Acros Organics BVBA  
 Janssen Pharmaceuticaaan 3a  
 2440 Geel, Belgium  
**Company Identification: (USA)** Acros Organics  
 One Reagent Lane  
 Fair Lawn, NJ 07410  
**For information in the US, call:** 800-ACROS-01  
**For information in Europe, call:** +32 14 57 52 11  
**Emergency Number, Europe:** +32 14 57 52 99  
**Emergency Number US:** 201-796-7100  
**CHEMTREC Phone Number, US:** 800-424-9300  
**CHEMTREC Phone Number, Europe:** 703-527-3887

**Section 2 - Composition, Information on Ingredients**

CAS#	Chemical Name:	% EINECS#
78-78-4	2-Methylbutane, spectrophotometric grade	201-142-8

**Hazard Symbols:** XN F+ N**Risk Phrases:** 12 51/53 65 66 67**Section 3 - Hazards Identification****EMERGENCY OVERVIEW**

*Extremely flammable. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.*

**Potential Health Effects**

**Eye:** May cause eye irritation.  
**Skin:** May cause skin irritation.  
**Ingestion:** May cause headache. May cause nausea and vomiting. May cause lung damage.  
**Inhalation:** May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema.

**Chronic:****Section 4 - First Aid Measures****DICE 01515**

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

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[illegible]

<b>General Information:</b>	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Extremely flammable liquid and vapor.
-----------------------------	--

dry ch

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition.

## e an sources

**Handling:** Use spark-proof tools and explosion proof equipment. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges.

**Storage:** Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Refrigerator/flammables.

### Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

## Exposure Limits

CAS# 78-78-4:

Germany: 1000 ppm TWA; 3000 mg/m<sup>3</sup> TWA

## Personal Protective Equipment

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Physical State:** Clear liquid

**Color:** colorless

**Odor:** gasoline-like

**pH:** Not available

**DICE 01516**



**Vapor Pressure:** 990 mbar @20 deg C  
**Viscosity:** Not available  
**Boiling Point:** 30 deg C @ 760.00mm Hg ( 86.00°F)  
**Freezing/Melting Point:** -160 deg C ( -256.00°F)  
**Autoignition Temperature:** 420 deg C ( 788.00 deg F)  
**Flash Point:** -51 deg C ( -59.80 deg F)  
**Explosion Limits: Lower:** 1.40 vol %  
**Explosion Limits: Upper:** 7.60 vol %  
**Decomposition Temperature:** Not available  
**Solubility in water:** insoluble in water  
**Specific Gravity/Density:** .6200g/cm3  
**Molecular Formula:** C2H5CH(CH3)2  
**Molecular Weight:** 72.15

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.  
**Conditions to Avoid:** Incompatible materials.  
**Incompatibilities with Other Materials:** Not available  
**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.  
**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:** CAS# 78-78-4: EK4430000  
**LD50/LC50:** RTECS:  
**CAS# 78-78-4:** Inhalation, mouse: LC50 = 150000 mg/m3/2H;  
Inhalation, rat: LC50 = 280000 mg/m3/4H;  
**Carcinogenicity:** 2-Methylbutane, spectrophotometric grade - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.  
**Other:** See actual entry in RTECS for complete information.

## Section 12 - Ecological Information

Not available

## Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

## Section 14 - Transport Information

	<b>IATA</b>	<b>IMO</b>	<b>RID/ADR</b>
<b>Shipping Name:</b>	PENTANES	PENTANES, LIQUID	PENTANES
<b>Hazard Class:</b>	3	3	3
<b>UN Number:</b>	1265	1265	1265
<b>Packing Group:</b>	I	I	I

## Section 15 - Regulatory Information

### European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F+ N

Risk Phrases:

R 12 Extremely flammable.

DICE 01517

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R 65 Harmful: may cause lung damage if swallowed.

R 66 Repeated exposure may cause skin dryness or cracking.

R 67 Vapours may cause drowsiness and dizziness.

-----  
Safety Phrases: -----

S 9 Keep container in a well-ventilated place.

S 16 Keep away from sources of ignition - No smoking.

S 29 Do not empty into drains.

S 33 Take precautionary measures against static discharges.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

S 62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

WGK (Water Danger/Protection)

CAS# 78-78-4: 1

Canada

CAS# 78-78-4 is listed on Canada's DSL List

**US Federal**

TSCA

CAS# 78-78-4 is listed on the TSCA Inventory.

**Section 16 - Other Information**

**MSDS Creation Date:** 7/16/1996

**Revision #1 Date** 7/05/2000

**Revisions were made in Sections:** General revision.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

**DICE 01518**

DICE 01519

# MATERIAL SAFETY DATA SHEET

B66W311  
08 00

## Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER

B66W311

HMIS CODES

Health	2
Flammability	0
Reactivity	0

PRODUCT NAME

SHER-CRYL\* HPA High Performance Acrylic Gloss Coating, Extra White/Tint Base

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY  
101 Prospect Avenue N.W.  
Cleveland, OH 44115

EMERGENCY TELEPHONE NO.

(216) 566-2917

DATE OF PREPARATION

09-OCT-05

INFORMATION TELEPHONE NO.

(216) 566-2902

## Section 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

% by WT	CAS No.	INGREDIENT	UNITS	VAPOR PRESSURE
1	111-77-3	2-(2-Methoxyethoxy)-ethanol		
		ACGIH TLV	Not Available	1 mm
		OSHA PEL	Not Available	
14	13463-67-7	Titanium Dioxide		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

## Section 3 -- HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

In a confined area vapors in high concentration may cause headache, nausea or dizziness.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

Continued on page 2

DICE 01520

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Section 4 -- FIRST AID MEASURES

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EYES: Flush eyes with large amounts of water for 15 minutes.  
Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.  
Remove contaminated clothing and launder before re-use.

INHALATION: If affected, remove from exposure. Restore breathing.  
Keep warm and quiet.

INGESTION: Do not induce vomiting.  
Get medical attention immediately.

---

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Section 5 -- FIRE FIGHTING MEASURES

---

FLASH POINT	LEL	UEL
Not Applicable	N.A.	N.A.

FLAMMABILITY CLASSIFICATION  
Not Applicable

EXTINGUISHING MEDIA  
Carbon Dioxide, Dry Chemical, Alcohol Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

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Section 6 -- ACCIDENTAL RELEASE MEASURES

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

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Section 7 -- HANDLING AND STORAGE

---

STORAGE CATEGORY

Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

Continued on page 3

## Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

## PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable fraction), OSHA PEL 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction).

## VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits.

Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

## RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

## PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

## EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

## Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	9.62 lb/gal	1152 g/l
SPECIFIC GRAVITY	1.16	
BOILING POINT	212 - 500 F	100 - 260 C
MELTING POINT	Not Available	
VOLATILE VOLUME	62 %	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	N.A.	
pH	9.0	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical)		
1.60 lb/gal	192 g/l	Less Water and Federally Exempt Solvents
0.75 lb/gal	90 g/l	Emitted VOC

## Section 10 -- STABILITY AND REACTIVITY

STABILITY -- Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

Continued on page 4

## HAZARDOUS POLYMERIZATION

Will not occur

## Section 11 -- TOXICOLOGICAL INFORMATION

## CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen. Rats exposed to titanium dioxide dust at 250 mg./m3 developed lung cancer, however, such exposure levels are not attainable in the workplace.

## TOXICOLOGY DATA

CAS No.	Ingredient Name				
111-77-3	2-(2-Methoxyethoxy)-ethanol				
	LC50	RAT	4HR	Not Available	
	LD50	RAT		5500	mg/kg
13463-67-7	Titanium Dioxide				
	LC50	RAT	4HR	Not Available	
	LD50	RAT		Not Available	

## Section 12 -- ECOLOGICAL INFORMATION

## ECOTOXICOLOGICAL INFORMATION

No data available.

## Section 13 -- DISPOSAL CONSIDERATIONS

## WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

## Section 14 -- TRANSPORT INFORMATION

No data available.

## Section 15 -- REGULATORY INFORMATION

## SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
	Glycol Ethers	1	

## CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

## TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

Continued on page 5

## Section 16 -- OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.





*Industrial  
and  
Marine  
Coatings*



# SHER-CRYL™ HPA HIGH PERFORMANCE ACRYLIC

B66-300 SERIES  
B66-350 SERIES

GLOSS  
SEMI-GLOSS

1.26

INDUSTRIAL  
& MARINE  
COATINGS

PRODUCT INFORMATION

Revised 7/04

PRODUCT DESCRIPTION

**SHER-CRYL HPA** is a new technology, ambient cured, one component acrylic coating with superior exterior performance properties. Provides performance comparable to high performance solvent based coatings such as urethanes and epoxies.

- Chemical resistant
- Superior color and gloss retention
- Outstanding early moisture resistance
- Flash rust/early rust resistant
- Suitable for use in USDA inspected facilities
- Corrosion resistant
- Fast dry
- Low odor

RECOMMENDED USES

For use over prepared:

- Steel
- Aluminum
- Zinc rich primers
- Galvanizing
- Concrete
- Wood
- Masonry

Examples:

- Buildings
- Machinery
- Power plants
- Select Marine Structures
- Storage Tanks
- Equipment
- Piping
- Water treatment plants
- New Construction
- Structural Steel

PRODUCT CHARACTERISTICS

Finish:	High Gloss or Semi-Gloss
Color:	Wide range of colors available
Volume Solids:	38.5% ± 2%, Ultra White
Weight Solids:	51% ± 2%, Ultra White
VOC (EPA Method 24):	<200 g/L; 1.66 lb/gal
Recommended Spreading Rate per coat:	
Wet mils:	6.0 - 10.0
Dry mils:	2.5 - 4.0
Coverage:	154 - 247 sq ft/gal approximate

**NOTE.** Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance

Drying Schedule @ 7.0 mils wet 50% RH:

	@ 50°F	@ 77°F	@ 120°F
To touch:	1 hours	30 minutes	5 minutes
Tack free:	8 hours	5 hours	15 minutes
To recoat:	8 hours	5 hours	15 minutes
To cure:	30 days	30 days	30 days

Drying time is temperature, humidity, and film thickness dependent

Shelf Life:	36 months, unopened Store indoors at 40°F to 100°F.
Flash Point:	>230°F, Seta Flash
Reducer/Clean Up:	Water

PERFORMANCE CHARACTERISTICS

**System Tested:** (unless otherwise indicated)

Substrate: Steel  
Surface Preparation: SSPC-SP10  
2 cts. Sher-Cryl HPA @ 3 mils dft/ct

**Adhesion:**

Method: ASTM D4541  
Result: 946 psi

**Corrosion Weathering with Pro-Cryl Primer:**

Method: ASTM D5894, 3360 hours, 10 cycles  
Result: Rating 10, per ASTM D714 for blistering  
Rating 9 per ASTM D1654 for corrosion

**Direct Impact Resistance:**

Method: ASTM D2794  
Result: >100 in. lbs

**Dry Heat Resistance:**

Method: ASTM D2485  
Result: 300°F

**Exterior Durability:**

Method: 3 years, 45° South  
Result: Excellent

**Flexibility:**

Method: ASTM D522, 180° bend, 1/8" mandrel  
Result: Passes

**Humidity Resistance with Pro-Cryl Primer:**

Method: ASTM D4585, 1250 hours  
Result: Rating 10 per ASTM D714 for blistering  
Rating 10 per ASTM D1654 for corrosion

**Pencil Hardness:**

Method: ASTM D3363  
Result: 2B

**Salt Fog Resistance with Pro-Cryl Primer:**

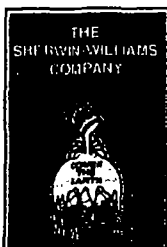
Method: ASTM B117, 1250 hours  
Result: Rating 10 per ASTM D714 for blistering  
Rating 9 per ASTM D1654 for corrosion

**Thermal Cycling:**

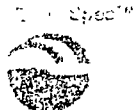
Method: ASTM D2246, 10 cycles  
Result: Passes

Provides performance comparable to products formulated to federal specification: Mil-P-28578B, TT-P-1511B, and Paint Specification: SSPC-Paint 23 and 24.

Meets or exceeds performance of MIL-PRF-24596A Flame Retardant Latex.



*Industrial  
and  
Marine  
Coatings*



1.26

# SHER-CRYL™ HPA HIGH PERFORMANCE ACRYLIC

B66-300 SERIES

B66-350 SERIES

GLOSS

SEMI-GLOSS

INDUSTRIAL  
& MARINE  
COATINGS

## PRODUCT INFORMATION

### RECOMMENDED SYSTEMS

**Steel:**  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Steel:**  
1 ct. Pro-Cryl Universal Primer @ 2.0 - 4.0 mils dft  
1-2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Steel:**  
1 ct. DTM Acrylic Primer/Finish @ 2.5 - 5.0 mils dft  
or Kem Bond HS @ 2.0 - 5.0 mils dft  
or Zinc Clad Primer @ 3.0 - 5.0 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Steel:**  
1 ct. Zinc Clad XI @ 3.0 - 4.0 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Aluminum:**  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Aluminum:**  
1 ct. DTM Wash Primer, @ 0.7 - 1.3 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Galvanizing:**  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Concrete Block:**  
1 ct. Heavy Duty Block Filler @ 10.0 - 18.0 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Concrete/Masonry:**  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Prefinished Siding: (Baked-on finishes)**  
1 ct. DTM Bonding Primer @ 2.0 - 5.0 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Wood, exterior:**  
1 ct. A-100 Exterior Oil Wood Primer @ 1.5 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

**Wood, interior:**  
1 ct. PrepRite Classic Latex Primer @ 1.6 mils dft  
2 cts. Sher-Cryl HPA @ 2.5 - 4.0 mils dft/ct

The systems listed above are representative of the product's use, other systems may be appropriate.

### SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Do not use hydrocarbon solvents for cleaning.**

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation

Iron & Steel	SSPC-SP2
Aluminum:	SSPC-SP1
Galvanizing:	SSPC-SP1
Concrete & Masonry:	SSPC-SP13/NACE 6
* Wood:	Dry and sanded smooth
* Prefinished Siding:	SSPC-SP1
* Requires primer	

### TINTING

Tint with EnviroToner Colorants at 100% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Do not use Blend-A-Color Toner.

### APPLICATION CONDITIONS

Temperature:	50°F minimum, 120°F maximum (air, surface, and material)
Relative humidity:	At least 5°F above dew point 85% maximum

Refer to product Application Bulletin for detailed application information.

### ORDERING INFORMATION

Packaging:	1 and 5 gallon containers
Weight per gallon:	10.30 ± 0.2 lb

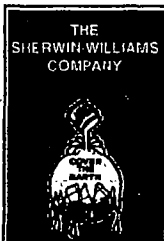
### SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

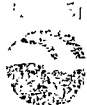
Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

The statements made herein are based on our research and/or the research of others believed to be accurate. No guarantee of their accuracy is made however, and such statements may be changed without notice.  
www.sherwin-williams.com

DICE 01526



# Industrial and Marine Coatings



## 1.26A SHER-CRYL™ HPA HIGH PERFORMANCE ACRYLIC

B66-300 SERIES  
B66-350 SERIES

GLOSS  
SEMI-GLOSS

INDUSTRIAL  
& MARINE  
COATINGS

### APPLICATION BULLETIN

Revised 7/04

#### SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

**Do not use hydrocarbon solvents for cleaning.**

##### Iron & Steel

Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Steam Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6. Primer recommended for best performance.

##### Aluminum

Remove all oil, grease, dirt, oxide and other foreign material by Steam Cleaning per SSPC-SP1

##### Galvanizing

The surface should be weathered for 6 months prior to painting. Remove all oil and grease by Steam Cleaning per SSPC-SP1. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2.

##### Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6. Surfaces should be thoroughly cleaned and dry. Surface temperatures must be at least 55°F before filling. If required for a smoother finish, use Heavy Duty Block Filler, B42W46. Filler must be thoroughly dry before topcoating per manufacturer's recommendations.

Weathered masonry and soft or porous cement board must be brush blasted or power tool cleaned to remove loosely adhering contamination and to get to a hard, firm surface. Apply one coat ProMar Masonry Conditioner, following label recommendations.

##### Wood

Surface must be clean, dry and sound. Prime with recommended primer. No painting should be done immediately after a rain or during foggy weather. Knots and pitch streaks must be scraped, sanded and spot primed before full coat of primer is applied. All nail holes or small openings must be properly caulked.

##### Pre-Finished Siding:

Remove oil, grease, dirt, oxides, and other contaminants from the surface by cleaning per SSPC-SP1 or water blasting per NACE Standard RP-01-72. Always checks for compatibility of the previously painted surface with the new coating by applying a test patch of 2 - 3 square feet. Allow to dry thoroughly for 1 week before checking adhesion. DTM Bonding Primer is required.

##### Previously Painted Surfaces

If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, additional abrasion of the surface and/or removal of the previous coating may be necessary. Retest surface for adhesion. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

#### APPLICATION CONDITIONS

Temperature: 50°F minimum, 120°F maximum  
(air, surface, and material)  
At least 5°F above dew point

Relative humidity: 85% maximum

#### APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with existing environmental and application conditions.

Reducer/Clean Up ..... Water

##### Airless Spray

Pressure ..... 1500 psi  
Hose ..... 1/4" ID  
Tip ..... 017" - .021"  
Filter ..... 60 mesh  
Reduction ..... Not recommended

##### Conventional Spray

Gun ..... Binks 95  
Fluid Nozzle ..... 66  
Air Nozzle ..... 63PB  
Atomization Pressure ... 50 psi  
Fluid Pressure ..... 15-20 psi  
Reduction ..... As needed up to 12½% by volume

##### Brush

Brush ..... Nylon / polyester  
Reduction ..... Not recommended

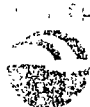
##### Roller

Cover ..... 3/8" woven with phenolic core  
Reduction ..... Not recommended

If specific application equipment is listed above, equivalent equipment may be substituted.



Industrial  
and  
Marine  
Coatings



1.26A  
**SHER-CRYL™ HPA**  
**HIGH PERFORMANCE ACRYLIC**

B66-300 SERIES  
B66-350 SERIES

GLOSS  
SEMI-GLOSS

INDUSTRIAL  
& MARINE  
COATINGS

APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

**Mixing Instructions:** Mix paint thoroughly by boxing and stirring before use.

Apply paint at the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

Wet mils:	6.0 - 10.0
Dry mils:	2.5 - 4.0
Coverage:	154 - 247 sq ft/gal approximate

**NOTE.** Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

**Drying Schedule @ 7.0 mils wet 50% RH:**

	@ 50°F	@ 77°F	@ 120°F
To touch:	1 hours	30 minutes	5 minutes
Tack free:	8 hours	5 hours	15 minutes
To recoat:	8 hours	5 hours	15 minutes
To cure:	30 days	30 days	30 days

Drying time is temperature, humidity, and film thickness dependent

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle

During the early stages of drying, the coating is sensitive to rain, dew, high humidity, and moisture condensation. If possible, plan painting schedules to avoid these influences during the first 16-24 hours of curing.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Application temperature above 95°F may cause dry spray, uneven sheen, and poor adhesion.

Application temperature below 50°F may cause poor adhesion and lengthen the drying and curing time.

High Performance Acrylic is extremely sensitive to hydrocarbon containing solvents. When cleaning the surface per SSPC-SP1, use only an emulsifying industrial detergent, followed by a water rinse. Do not use hydrocarbon containing solvents.

**Do not use hydrocarbon solvents for cleaning.**

Refer to Product Information sheet for additional performance characteristics and properties.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with soap and warm water. Clean hands and tools immediately after use with soap and warm water. After cleaning, flush spray equipment with Mineral Spirits to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using Mineral Spirits.

**NOTE:** If coating is allowed to "set-up", Reducer #54, R7K54, may be required for cleaning. Follow manufacturer's safety recommendations when using Reducer #54.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

The statements made herein are based on our research and/or the research of others believed to be accurate. No guarantee of their accuracy is made however, and such statements may be changed without notice.  
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DICE 01528

## MATERIAL SAFETY DATA SHEET

B66T304  
07 00

## Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

## PRODUCT NUMBER

B66T304

## HMIS CODES

Health	2
Flammability	0
Reactivity	0

## PRODUCT NAME

SHER-CRYL\* HPA High Performance Acrylic Gloss Varnish, Clear Tint Base  
MANUFACTURER'S NAME  
THE SHERWIN-WILLIAMS COMPANY  
101 Prospect Avenue N.W.  
Cleveland, OH 44115

EMERGENCY TELEPHONE NO.  
(216) 566-2917

DATE OF PREPARATION  
05-MAR-06

INFORMATION TELEPHONE NO.  
(216) 566-1902

## Section 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

% by WT	CAS No.	INGREDIENT	UNITS	VAPOR PRESSURE
2	111-77-3	2-(2-Methoxyethoxy)-ethan		
		ACGIH TLV	Not Available	1 mm
		OSHA PEL	Not Available	
3	1332-58-7	Kaolin		
		ACGIH TLV	2 mg/m <sup>3</sup> as Resp. Dust	
		OSHA PEL	10 mg/m <sup>3</sup> Total Dust	
		OSHA PEL	5 mg/m <sup>3</sup> Respirable Fraction	

## Section 3 -- HAZARDS IDENTIFICATION

## 1. TYPES OF EXPOSURE

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

## EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

In a confined area vapors in high concentration may cause headache, nausea or dizziness.

## SIGNS AND SYMPTOMS OF OVEREXPOSURE

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

## MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

## CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

Continued on page 2

DICE 01529

B66T304

page 2

## Section 4 -- FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes.  
Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.  
Remove contaminated clothing and launder before re-use.

INHALATION: If affected, remove from exposure. Restore breathing.  
Keep warm and quiet.

INGESTION: Do not induce vomiting.  
Get medical attention immediately.

## Section 5 -- FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL
Not Applicable	N.A.	N.A.

## FLAMMABILITY CLASSIFICATION

Not Applicable

## EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Alcohol Foam

## UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

## SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

## Section 6 -- ACCIDENTAL RELEASE MEASURES

## STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

## Section 7 -- HANDLING AND STORAGE

## STORAGE CATEGORY

Not Applicable

## PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

Continued on page 3

DICE 01530

B66T304

page 3

## Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

## PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.  
Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable fraction), OSHA PEL 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction).

## VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.133.

## RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

## PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

## EYE PROTECTION

Wear safety spectacles with unperforated side shields.

## Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	8.76 lb/gal	1.47 g/l
SPECIFIC GRAVITY	1.05	
BOILING POINT	212 - 500 F	100 - 260 C
MELTING POINT	Not Available	
VOLATILE VOLUME	61 %	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	N.A.	
pH	9.0	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical)		
1.47 lb/gal 176 g/l	Less Water and Federally Exempt Solvents	
0.70 lb/gal 83 g/l	Emitted VOC	

## Section 10 -- STABILITY AND REACTIVITY

STABILITY -- Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

Continued on page 4

DICE 01531

B66T304

Page 4

## HAZARDOUS POLYMERIZATION

Will not occur

## Section 11 -- TOXICOLOGICAL INFORMATION

## CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP, or ICHA listed carcinogen.

## TOXICOLOGY DATA

CAS No.	Ingredient Name				
111-77-3	2-(2-Methoxyethoxy)-ethanol	LC50	RAT	4H5	Not Available
		LD50	RAT		5500 mg/kg
1332-58-7	Kaolin	LC50	RAT	4H5	Not Available
		LD50	RAT		Not Available

## Section 12 -- ECOLOGICAL INFORMATION

## ECOTOXICOLOGICAL INFORMATION

No data available.

## Section 13 -- DISPOSAL CONSIDERATIONS

## WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Incinerate in approved facility. Do not incinerate closed container.

Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

## Section 14 -- TRANSPORT INFORMATION

No data available.

## Section 15 -- REGULATORY INFORMATION

## SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
	Glycol Ethers	2	

## CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

## TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

Continued on page 5

DICE 01532



B66T304

SECRET

page 5

## Section 16 -- OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CCPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

DICE 01533



**COUNTY OF LOS ANGELES**  
**DEPARTMENT OF PUBLIC WORKS**

900 SOUTH FREMONT AVENUE  
ALHAMBRA, CALIFORNIA 91803-1331  
Telephone (818) 458-5100

THOMAS A. TIDEMANSON, Director

ADDRESS ALL CORRESPONDENCE TO  
P O BOX 1460  
ALHAMBRA, CALIFORNIA 91802-1460

December 24, 1992

SAFETY DEPARTMENT  
RECEIVED

DEC 31 1992

IN REPLY PLEASE REFER TO FILE I-225

Mr. David Simon  
Liquid Air Corporation  
P. O. Box 8038  
Walnut Creek, CA 94596

Dear Mr. Simon:

**HAZARDOUS MATERIALS UNDERGROUND STORAGE  
CLOSURE CERTIFICATION  
CLOSURE PERMIT NOS. 4784B AND 6555B  
LOCATION: 8832 DICE ROAD, SANTA FE SPRINGS**

This office has reviewed the final closure report submitted on September 24, 1990. Based on the information submitted, this letter confirms the completion of site investigation and remedial action of contamination resulting from leaking underground storage tanks at the above site. With the provision that the information provided to this agency was accurate and representative of existing conditions, it is our position that no further action is required at this time.

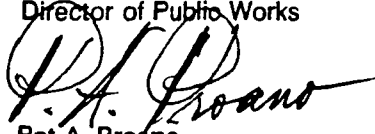
Please be advised that this letter does not relieve you of any liability under the California Health and Safety Code or Water Code for past, present or future operations at this site. Nor does it relieve you of the responsibility to clean up existing, additional or previously unidentified conditions at the site which cause or threaten to cause pollution or nuisance or otherwise pose a threat to water quality or public health.

Additionally, be advised that changes in the present or proposed use of the site may require further site characterization and mitigation activity. It is the property owner's responsibility to notify this agency of any changes in report content, future contamination findings or site usage.

If you have any questions regarding this matter, please contact Nicole Long at (818) 458-3572.

Very truly yours,

T. A. TIDEMANSON  
Director of Public Works

  
Pat A. Proano  
Supervising Civil Engineer II  
Waste Management Division

NL:rm  
WP/225

cc: California Regional Water Quality Control Board  
Ms. Jaqui Sikoryak, State Water Resources Control Board

DICE 01534



# MEMORANDUM

2202.18

TO: Milt Bird - SF Springs  
FROM: David Simon  
LOC / DIV:

DATE: January 4, 1993  
SUBJECT: Underground Storage  
Closure Certification  
COPIES:

Re: County of Los Angeles Letter  
Dated December 24, 1992, Attached

The attached letter acknowledges proper closure of the four (4) underground storage tanks which were removed from SF Springs per our September 24, 1990 closure report.<sup>1</sup>

Please keep on file.

David Simon  
Manager Regulatory Affairs

DS/db

Att:

cc: R. Predmore  
~~K. Brown - Real Estate File~~

FILE R.E.  
SF Springs  
(8832 DICE)

---

<sup>1</sup> Gasoline, diesel, acetone, waste oil.

dns0193.mem

DICE 01535



October 20, 2004

Philip Loder  
Department of Toxic Substances Control  
1001 "I" Street, 25<sup>th</sup> Floor  
PO Box 806  
Sacramento, CA 95812-0806

Dear Mr. Loder:

RE: Notice of Non-Compliance: Hazardous Waste Source Reduction and Management Review Act (SB 14)

This letter is in response to your letter dated October 6, 2004. Air Liquide American did generate over 12,000 kg of hazardous waste in 2002 at the Santa Fe Springs, CA facility in the removal of underground storage tank operations involving acetone. After this waste generation in 2002, all underground storage tank removal operations involving acetone have ceased. In both 2003 and 2004, less than 2,000 kg of hazardous waste was generated.

I contacted Relly Briones today and I explained this matter to him. He has confirmed and agreed that there is no further action for the Air Liquide Santa Fe Springs, CA to take.

Thank you for your assistance on this matter. If you have any questions, please contact me at 713-402-2111.

Sincerely,

Farah Ullah  
Environmental Specialist  
Air Liquide, LP

DICE 01536



**AIR LIQUIDE**

October 20, 2004

Philip Loder  
Department of Toxic Substances  
1001 "I" Street, 25<sup>th</sup> Floor  
PO Box 806  
Sacramento, CA 95812-0806

*This letter was sent  
to Philip Loder and  
Relly Briones.*

Dear Mr. Loder:

RE: Notice of Non-Compliance  
Review Act (SB 14)

*10/20/04*

*Farah Ullah*

This letter is in response to your letter of October 15, 2004. Air Liquide did generate over 12,000 kg of hazardous waste in 2002 at the Santa Fe Springs, CA facility in the removal of underground storage tank operations involving acetone. After this waste generation in 2002, all underground storage tank removal operations involving acetone have ceased. In both 2003 and 2004, less than 2,000 kg of hazardous waste was generated.

I contacted Relly Briones today and I explained this matter to him. He has confirmed and agreed that there is no further action for the Air Liquide Santa Fe Springs, CA to take.

Thank you for your assistance on this matter. If you have any questions, please contact me at 713-402-2111.

Sincerely,

*Farah Ullah*

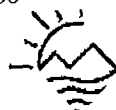
Farah Ullah  
Environmental Specialist  
Air Liquide, LP

DICE 01537

U.S. Postal Service CERTIFIED MAIL RECEIPT (Domestic Mail Only; No Insurance Coverage Provided)	
OFFICIAL USE	
Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$
10/20/04 Postmark Here	
Sent To: Philip Loder	
Street, Apt. No.: 1001 "I" Street, 25 <sup>th</sup> Floor	
City, State, ZIP+4: Sacramento, CA 95812-0806	



Terry Tamminen  
Agency Secretary  
Cal/EPA



## Department of Toxic Substances Control

1001 "I" Street, 25th Floor  
P.O. Box 806  
Sacramento, California 95812-0806



Arnold Schwarzenegger  
Governor

October 6, 2004

CERTIFIED MAIL #7004-1160-0006-8364-0558

Environmental Manager  
AIR LIQUIDE AMERICA CORPORATION  
EPA ID #CAL000021160  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670-0000

### NOTICE OF NONCOMPLIANCE: HAZARDOUS WASTE SOURCE REDUCTION AND MANAGEMENT REVIEW ACT (SB 14)

Dear Environmental Manager:

This letter is to inform AIR LIQUIDE AMERICA CORPORATION, EPA ID #CAL000021160, that it is in violation of the requirements of the Hazardous Waste Source Reduction and Management Review Act (SB 14), of the California Health and Safety Code, Division 20, Chapter 6.5, Article 11.9, Section 25244.12 et al. The SB 14 requires that entities generating more than 12,000 kg/yr of hazardous waste identify waste sources, evaluate alternatives to waste generation, document hazardous waste management practices, and submit a Summary Progress Report (SPR) to the Department of Toxic Substances Control (DTSC). Preparation of hazardous waste source reduction plans benefits companies by helping to identify ways of reducing wastes which in turn can reduce costs and employee exposure to chemicals. Waste reduction also helps protect California's environment.

AIR LIQUIDE AMERICA CORPORATION generated over 12,000 kg of hazardous waste in 2002 and is subject to SB 14. AIR LIQUIDE AMERICA CORPORATION failed to submit a SPR, on or before September 1, 2003, as required by SB 14.

In May 2004, the Office of Pollution Prevention and Technology Development (OPPTD) of DTSC requested by mail that AIR LIQUIDE AMERICA CORPORATION submit a SPR to DTSC. AIR LIQUIDE AMERICA CORPORATION did not respond to the letter. The letter explained the obligations of AIR LIQUIDE AMERICA CORPORATION under SB 14, and provided instructions for returning to compliance.

Environmental Manager  
October 6, 2004  
Page 2

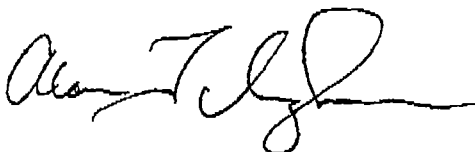
This letter is a Notice of Noncompliance with the requirements of SB 14. AIR LIQUIDE AMERICA CORPORATION must submit a SPR to DTSC **within ten days of receipt of this letter**. Failure to respond to this deadline may result in penalties of up to \$1,000 per day pursuant to the California Health and Safety Code Section 25244.18(d)(2).

Documents should be sent to:

Mr. Philip A. Loder  
Department of Toxic Substances Control  
Office of Pollution Prevention and Technology Development  
P.O. Box 806  
Sacramento, California 95812-0806

If you have any questions, or need further information or assistance in complying with SB 14 or this notice, please contact OPPTD at (916) 322-3670.

Sincerely,



Alan Ingham  
Office of Pollution Prevention  
and Technology Development

DICE 01539

# AIR LIQUIDE AMERICA CORPORATION

8832 DICE ROAD,  
SANTA FE SPRINGS, CALIFORNIA 90670  
562 945 1183  
562 693 1156 FAX

To: Kelly Davidson From: Ilya Kazhodin  
Fax: \_\_\_\_\_ Pages: 3  
Phone: \_\_\_\_\_ Date: 10/12/04  
Re: Letter on noncompliance Cc: \_\_\_\_\_

☒ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

Property of Air Liquide America Corporation. The information contained in this message is intended only for use by the individual named above. This may be confidential. If you have received this in error, please notify me immediately at the number above.

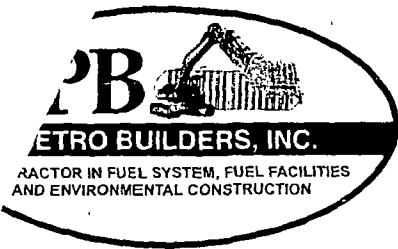
Comments:

Please give me a call as soon as you find any info. Ilya

FOIA ex 6, Personal Privacy

DICE 01540





TEL: (562) 946-2285 • FAX: (562) 946-5395

[HTTP://WWW.PETROBUILDERS.COM](http://www.petrobuilders.com)

July 9, 2002

Air Liquide  
12800 W. Little York Road  
Houston, TX 77041

Re: Tank Removal

Attn: Ms. Kelly Davidson

Enclosed please find the following documents for the above referenced location.

Inspection Cards & Permits  
Lien Releases (none)  
Waste Manifest  
Marine Chemist Certificate  
Tank Destruct Receipt  
Certificate Of Analysis (Chemtek)  
Compaction Report (Drew Associates Corp.)  
Soil Sample Report (AGE)

If you have any questions please contact the undersigned.

Thank you,  
PETRO BUILDERS, INC.

Jon Spohr  
Sr. Administrative Assistant

JS:sf

Encl.

DICE 01541

# Inspection Cards & Permits

DICE 01542

**City of Santa Fe Springs Fire Department**  
11300 GREENSTONE AVE • SANTA FE SPRINGS • CA 90670  
(562) 944-9713 • FAX (562) 941-1817

### POST ON JOB SITE

Name of Facility AIR LIQUIDE AMERICA CORP.  
Project Address 8832 DICE RD. S.F.S.  
Project Contact ARON L. TESCH Telephone (562) 464-5242  
Architect/Engineer \_\_\_\_\_ Telephone ( ) \_\_\_\_\_  
Address \_\_\_\_\_

Description of work
<u>1. UST VAPOR</u>

**CONTRACTOR INFORMATION (if applicable)**

Contractor PETRO BUILDERS INC. Telephone (562) 946-2285  
Address 10609 PAINTER AVE. SFS  
License Class A License Number 94-017 Expiration Date 9/30/02

### FIRE INSPECTION

**NOTE: DO NOT OCCUPY BUILDING, ROOMS, ACTIVATE SYSTEMS OR EQUIPMENT UNTIL FINAL INSPECTIONS HAVE BEEN MADE.**

NOTIFY THE SANTA FE SPRINGS FIRE DEPARTMENT ((562) 944-9713) AT LEAST 24 HOURS BEFORE THE JOB IS READY FOR INSPECTION. WHEN CALLING, PLEASE GIVE THE OWNERS NAME, JOB ADDRESS, AND TYPE OF INSPECTION REQUIRED. **IF INSPECTION IS NOT READY UPON FIRE INSPECTOR'S ARRIVAL, YOU MAY BE CHARGED A REINSPECTION FEE.**

FIRE PROTECTION DIVISION	DATE	INSPECTOR	FIRE PROTECTION DIVISION	DATE	INSPECTOR
Fire Alarm System			Oil Well Abandonment		
Locations			50 Foot Top Plug		
Installation			Welded Plate		
Test			Soil Venting Systems		
Final			Excavations		
Automatic Sprinkler System			Aggregate, Barrier, Piping		
U/G Hydro			Trenching		
U/G Flush			Gas Detection System		
O/H Hydro			High-Piled Combustible Stock		
Final			Racks/Draft Curtains/Hose Racks/Smoke Vents		
Compressed Gas System Test			Dry/Wet Chemical Extinguishing System		
PG Tank					
Paint Spray Booth/Electrostatic					
Oil Tank					
Dust Collection System					
and pipe Wet/Dry					
On-Site Fire Hydrant System					
U/G Hydro					
Flush					
Raw Construction Final					
Drying Ovens (Industrial Baking/drying)					
Roof & Air Supported Structure					
Flow/Powder Coating Equipment					
Roof Improvement (Structure)					
Roof Improvement (Auto Sprinkler)					
Rough					
Final					

Remarks: witnessed removal of 1-6K acetone UST + samples

DICE 01543

POST THIS CARD AT JOB SITE

CITY OF SANTA FE SPRINGS  
DIVISION OF BUILDING & SAFETY  
11710 TELEGRAPH ROAD  
SANTA FE SPRINGS, CA 90670  
(562) 868-0511 EXT. 241

## INSPECTION RECORD

PERMITS WILL BE VOIDED IF WORK IS  
STOPPED FOR 365 CONSECUTIVE DAYS

9245 1-31-02 PERM. TANK  
BLDG. PERMIT NO. DATE GROUP  
8832 DICE RD.  
ADDRESS  
ARR LIGONITE AVE  
OWNER

NOTE: Do Not Cover Walls Until Frame, Insulation, Electrical,  
Mechanical and Plumbing Have Been Signed.

BUILDING	DATE	INSPECTOR'S SIGNATURE
FOUNDATION LOCATION FORMS, SETBACK		
SLAB		
Pour No Concrete Until Above Has Been Signed		
JOIST & SHEATHING		
FRAME FIRE STOPS, BRACING, BOLTS		
INSULATION		
LATH INT. <input type="checkbox"/> DRY WALL <input type="checkbox"/>		
LATH EXT		
ELECTRICAL	DATE	INSPECTOR'S SIGNATURE
UNDER SLAB WORK		
ROUGH CONDUIT		
ROUGH WIRING		
TEMP POWER		
MECHANICAL	DATE	INSPECTOR'S SIGNATURE
FAU A.C. REF BOILER OTHER		
COMBUST. & CIRCULAT. AIR, DUCTS, VENTS, ETC		
LOCATION, CLEARANCE, ACCESS		
PLUMBING	DATE	INSPECTOR'S SIGNATURE
UNDER SLAB WORK		
ROUGH PLUMBING		
ROUGH GAS PIPING		
HOUSE SEWER		
SEPTIC TANK, SEEP PIT(S) AND/OR DRAINFIELD		
FINAL APPROVALS	DATE	INSPECTOR'S SIGNATURE
ELECTRICAL		
GAS PIPING		
MECHANICAL		
PLUMBING FIXTURES		
BUILDING	<u>3/9/02</u>	<u>Kooyul</u>

DICE 01544

City of Santa Fe Springs Fire Department • Certified Underground Program Agency

11300 Greenstone Avenue

Santa Fe Springs, CA 90670

Phone (562) 944-9713 • Fax (562) 941-1817

# APPLICATION FOR STORAGE TANK CLOSURE

☐ ABOVEGROUND ☒ UNDERGROUND

FACILITY NAME: AIR LIQUIDE AMERICA CORP.

LOCATION: 8832 DICE RD. S.F.S.

## RESPONSIBLE PARTY INFORMATION:

Name AARON L. TESCH / AIR LIQUIDE

Mailing Address 8832 DICE RD City SFS State CA Zip 90670

Contact Person AARON L. TESCH Phone 562-464-5242

☒ CONTRACTOR OR ☐ OWNER/OPERATOR AS CONTRACTOR Please indicate by checking appropriate box A list of all subcontractors must be provided List must include subcontractor name, address, phone number, scope of work, and a copy of the contractor's license

Name PETRO BUILDERS INC State License Number

Address 10609 PAINTER AVE City SFS State CA Zip 90670

Contact Person JOANNA SHULTZ Phone 562-9462285

CLOSURE REQUESTED: All closures under this application must meet the requirements and conditions listed below

☒ Permanent, tank removal, non-hazardous (see condition A attached)

☐ Permanent, tank removal, hazardous (see condition B attached)

☐ Permanent, closure in place (see condition C attached).

☐ Temporary (see condition D attached)

☐ Monitoring well abandonment (see Condition E attached)

DATE TANK SYSTEM WILL BE CLEANED AND/OR EXCAVATED, OR CLOSED. 2/14/02 INTENDED DISPOSITION OF TANK Remove

INTENDED DESTINATION OF TANK SYSTEM (location name and address): - 2728 Long Beach Ave. - L.A. - METAL INC

## COMPLETE THE FOLLOWING:

					TO BE COMPLETED BY FIRE DEPT.		
TANK ID NUMBER (use state tank ID# for underground tanks)	TANK MATERIAL	AGE IN YEARS	CAPACITY	LAST MATERIAL STORED/PAST MATERIAL STORED PER CC467383 3(D)1	DATE CLOSED	INSPECTOR INITIALS	COMMENTS
19049600094000001	steel w/ clad FRP	13 yrs.	6000	ACETONE			

Has an unauthorized release ever occurred at this site?

YES

☐

Have structural repairs ever been made to these tanks?

☐

Will new tanks be installed after this closure?

☐

How many tanks will remain after this closure?

ASTs

USTs

NO

☒

☒

☒

DICE 01545

By signature below the applicant certifies that they have read, understand, and agree to abide by the Storage Tank Closure Requirements and Conditions, the Notification/Permit Requirements and Contractor's Declaration, the Notice to Closure Permit Applicants, and all other conditions and limitations attached Additional guidelines are available upon request By signature below you declare you are authorized to certify on behalf of the tank operator that the identity of the last material or waste stored or accumulated in the tank is true and correct.

Applicant's Signature Ralph Barajas

Date 1-23-02

Print Name RALPH BARAJAS

Phone 562-9462285

Title (please check): ☐ Owner ☐ Operator ☒ Contractor

## TO BE COMPLETED BY THE SANTA FE SPRINGS FIRE DEPARTMENT

PERMISSION IS HEREBY GRANTED TO PROCEED WITH THE CLOSURE DESCRIBED ABOVE SUBJECT TO THE ATTACHED CONDITIONS AND LIMITATIONS. THIS PERMIT EXPIRES 180 DAYS FROM THE DATE BELOW.

Neal Welland

\* Inspector Neal Welland

Date Approved 1/25/02

Fire Chief

Fee Amount \$ 464.00

Date Paid 1/25/02 Received by Am...

**City of Santa Fe Springs Fire Department**  
 11300 GREENSTONE AVE • SANTA FE SPRINGS • CA 90670  
 (562) 944-9713 • FAX (562) 941-1817

## PLAN REVIEW / PERMIT APPLICATION

Name of Facility <u>AIR LIQUIDE AMERICA CORP.</u> Project Address <u>8832 DICE RD. S.F.S.</u> Project Contact <u>AARON L. TESCH</u> Telephone <u>(562) 464-5242</u> Architect/Engineer _____ Telephone ( ) _____ Address _____	Description of work <u>1- 6,000 UST removal</u> <u>(acetone)</u>
--	--

**CONTRACTOR INFORMATION (if applicable)**

Contractor PETRO BUILDERS INC. Telephone (562) 946-2285  
 Address 10609 PAINTER AVE, SFS  
 License Class A License Number 241905 Expiration Date 9/30/02

**LICENSED CONTRACTOR DECLARATION (if applicable)**

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Signature Ralph Barajas FOR PETRO BUILDERS Date 1/23/01

**OWNER/BUILDER DECLARATION**

I hereby certify that I have read this application and state that the above information is correct. I agree to comply with all city ordinances and state laws relating to construction, and hereby authorize representatives of this city to enter upon mentioned property for inspection purposes.

Signature Ralph Barajas Date 1/23/01

√	FIRE PROTECTION DIVISION	FEE	√	ENVIRONMENTAL PROTECTION DIVISION	FEE
	Preliminary Plan Review			Preliminary Plan Review (Article 80)	
	3 or more Plan Re-Submittal			"H" Occupancy	
	Fire Alarm System			Emergency Alarm System	
	Fire Extinguishing System (Dry Chem System)			Closure Plan/Permit Review	
	Fire Sprinkler Systems			UST & AST (Installation/Removal/Modifications)	
	sq. ft. per floor			a. First Tank	464.00
	New Construction Plan Review			b. Each Additional Tank	
	sq. ft. per floor			Chemical Classification & Occupancy Rating	
	High-Piled Combustible Stock (Racks/Draft			U.F.C./U.B.C. Tables Review	
	Curtains/Hose Racks/Smoke Vents)			Site Assessment/Mitigation	
	sq. ft. per floor			Asbestos Removal	
	Underground Fire Mains/Pumps/Tanks			IW Permit Review	
	Tenant Improvements (Structural/Sprinkler)			IW Plan Review	
	Flammable/Combustible Liquid Tank & Piping (UG & AG)			Plan Expedite	
	LPG Tanks			Other	
	Paint Spray Booths/Dip Tanks				
	Dust Collection Systems				
	On-site Fire Hydrant System		√	<b>FIRE SUPPRESSION</b>	
	Drying Ovens			Stand-by Fire Watch	
	Tents and Air Support Structure			Fire Department Equipment w/ Crew	
	Compressed Gas System			Confined Space Back-up Team	
	Carnivals & Fairs				
	Monitoring Wells				
	Abandonment/Reabandonment of Oil Wells w/capping			OTHER	
	Gas Detection Systems				
	Soil Venting Systems				
	Plan Expedite				
	Other				

DICE 01546

<u>B. Nelson</u> INSPECTOR	<u>1/25/02</u> DATE	<b>TOTAL DUE</b>	<u>\$464.00</u>
-------------------------------	------------------------	------------------	-----------------



# WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C)

Policy No. WC9490387 Company COMM. & IND. INS. CO.

1 Certified copy is hereby furnished

1 Certified copy is filed with the county building inspection department

Date 1-31-02 Applicant Ralph Banger

## CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars (\$100) or less)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws.

Date \_\_\_\_\_ Applicant \_\_\_\_\_

**NOTICE TO APPLICANT:** If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

## LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect

License Number 241905 Lic. Class A

Contractor PERRO BUILDERS INC Date 1-31-02

I am exempt under Sec. \_\_\_\_\_

B. & PC for this reason \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_

I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended of offered for sale (Section 7044, Business and Professions Code.)

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Section 7044, Business and Professions Code.)

## CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Div. C)

Lender's Name \_\_\_\_\_

Lender's Address \_\_\_\_\_

I certify that I have read this application and state under penalty of perjury that the above information is correct. I agree to comply with all county ordinances and State laws relating to building construction, and hereby authorize representatives of this County to enter upon the above mentioned property for inspection purposes.

Signature of Applicant or Agent Ralph Banger Date 1/31/02

## COUNTY OF LOS ANGELES

FOR APPLICANT TO FILL IN

BUILDING ADDRESS <u>8832 DICE RD</u>	
CITY <u>STA. FE SPRINGS</u>	ZIP <u>90670</u>
SIZE OF LOT	NO. OF BLDGS. NOW ON LOT
TRACT	BLOCK
ASSESSOR MAP BOOK	PAGE
OWNER <u>AIR LIQUIDE AMERZ</u>	TEL NO. <u>562 464524</u>
ADDRESS <u>8832 DICE RD</u>	
CITY <u>S.F.S.</u>	ZIP <u>90670</u>
ARCHITECT OR ENGINEER	TEL NO
ADDRESS	
CONTRACTOR <u>PERRO BUILDERS INC</u>	TEL NO <u>562 9462285</u>
ADDRESS <u>18609 PAINTER</u>	LIC. NO. <u>241905</u>
CITY <u>S.F.S.</u>	LIC. CLASS <u>A</u>
SQ. FT. SIZE	NO. OF STORIES
NO. OF FAMILIES	
DESCRIPTION OF WORK <u>REMOVAL OF (1) 6000 GAL. U.G. TANK</u>	
USE OF EXISTING BLDG.	
APPLICANT (PRINT)	TEL NO.
ADDRESS	
WILL THE APPLICANT OR FUTURE BUILDING OCCUPANT HANDLE A HAZARDOUS MATERIAL OR A MIXTURE CONTAINING A HAZARDOUS MATERIAL EQUAL TO OR GREATER THAN THE AMOUNTS SPECIFIED ON THE HAZARDOUS MATERIALS INFORMATION GUIDE? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
WILL THE INTENDED USE OF THE BUILDING BY THE APPLICANT OR FUTURE BUILDING OCCUPANT REQUIRE A PERMIT FOR CONSTRUCTION OR MODIFICATION FROM THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) SEE PERMITTING CHECKLIST FOR GUIDELINES YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
I HAVE READ THE HAZARDOUS MATERIALS INFORMATION GUIDE AND THE SCAQMD PERMITTING CHECKLIST. I UNDERSTAND MY REQUIREMENTS UNDER THE LOS ANGELES COUNTY CODE, TITLE 2, CHAPTER 2, 20 SECTIONS 2, 20 100 THROUGH 2, 20 140 CONCERNING HAZARDOUS MATERIALS REPORTING AND FOR OBTAINING A PERMIT FROM THE SCAQMD. <u>Ralph Banger</u> OWNER OR AGENT	
P.C. FEE	PERMIT FEE <u>121.00</u>
	ISSUANCE FEE <u>20.00</u>
INVESTIGATION FEE	ISSUANCE FEE <u>141.00</u>

SEE REVERSE FOR EXPLANATORY LANGUAGE

## BUILDING AND SAFETY

BUILDING ADDRESS <u>8832 DICE RD</u>	
LOCALITY <u>SFS</u>	
NEAREST CROSS ST	
USE ZONE	MAP NO.
SPECIAL CONDITIONS	
WITHIN 1000 FT. OF SCHOOL? YES <input type="checkbox"/> NO <input type="checkbox"/>	
DISTRICT <u>4.05</u>	GROUP <u>DEMO. 00</u>
TYPE CONST <u>TANK</u>	FIRE ZONE <u>III</u>
PROCESSED BY <u>Library</u>	
STATISTICAL CLASSIFICATION	
CLASS NO. <u>241905</u>	DWELL UNITS
APT	CONDO
REQUIRED SET BACK	YARD
HWY	TOTAL SETBACK FROM PROP LINE
EXIST WIDTH	
FRONT	
P L	
SIDE	
P L	
SEWER MAP	
BK	PG
VALUATION	
\$	
\$	
LDMA P/C #	
LDMA Perm #	
FINAL DATE	
FINAL BY	

DICE 01547

VALIDATION

PERMITTEE COPY

# Waste Manifest

DICE 01548



UNIFORM HAZARDOUS WASTE MANIFEST		Generator's US EPA ID No	Manifest Document No	2. Page 1 of 1	Information in the shaded areas is not required by Federal law
3 Generator's Name and Mailing Address <b>AIR LIQUIDE</b> <b>8352 DICE ROAD; SANTA FE SPRINGS, CA 90670</b>		4 Generator's Phone (562) 464-5241		5 State Manifest Document Number <b>20831170</b>	
5 Transporter 1 Company Name <b>ADAMS SERVICES, INC.</b>		6 US EPA ID Number <b>CA11922125668</b>		7 State Generator's ID	
7 Transporter 2 Company Name		8 US EPA ID Number		8 State Transporter's ID (Reserved)	
9 Designated Facility Name and Site Address <b>DEMENNO/KERDOON</b> <b>2000 N. ALAMEDA ST.</b> <b>COMPTON, CA 90222</b>		10 US EPA ID Number <b>CA11922125668</b>		9 State Facility's ID	
11 US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12 Containers No Type		13 Total Quantity	14 Unit Wt/Vol
a (OIL & WATER, NON-R.C.E.A. HAZARDOUS WASTE LIQUID		001 T T		00100	G
b					
c					
d					
15 Special Handling Instructions and Additional Information <b>DON PROPER PROTECTIVE GEAR</b> <b>NO SMOKING; E.R.G. #27</b>		Contractor: <b>Petro Builders, Inc.</b>			
16 GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford					
Printed/Typed Name <b>JOSE M. MARINIS-TOIN</b>		Signature <i>[Signature]</i>		Month Day Year <b>02 12 98</b>	
17 Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name <b>ADAMS</b>		Signature <i>[Signature]</i>		Month Day Year <b>02 12 98</b>	
18 Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
19 Discrepancy Indication Space  <b>DICE 01549</b>					
20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19					
Printed/Typed Name		Signature		Month Day Year	

DO NOT WRITE BELOW THIS LINE.

# Marine Chemist Certificate

Thomas D. Beck & Assoc., Inc.  
Iba HARBOR TESTING LABORATORY  
4 HOUR PHONE: (562) 492-9646

P-# 8154-004

MARINE CHEMIST CERTIFICATE

Serial # 10717

Survey Requested By  
PETROBUILDERS  
UNDERGROUND TANK  
Issue  
ACETONE  
Test Cargo

AIR LIQUIDE  
Vessel Owner or Agent  
U.S.T.  
Type of Vessel  
LEL, O<sub>2</sub>, VISUAL  
Tests Performed

12 FEB 02  
8832 DICE RD  
Specific Location of Vessel  
1315 Hrs  
Time Survey Completed

UNDERGROUND STORAGE  
TANK MARKED WITH  
RED SPRAY PAINT  
10717

TESTED: 0% LEL  
20.8% O<sub>2</sub>

NOT SAFE FOR WORKERS  
NOT SAFE FOR HOT WORK  
TANK HAS BEEN CLEANED  
SAFE TO GO DOWN TANK  
USING HYDRAULIC / PNEUMATIC TOOLS.

DICE 01551

USA MICROBARD SN 3236 CALIBRATED C 0630 Hrs 12 FEB 02

In the event of any physical or atmospheric adversely affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, or if any doubt, immediately stop all work and contact the undersigned Marine Chemist.

QUALIFICATIONS Transfer of ballast or manipulation of valves or closure equipment tending to alter conditions in pipe lines, tanks or compartments subject to gas accumulation, unless specifically approved in this Certificate, requires inspection and endorsement or reissue of Certificate for the spaces so affected. All lines, vents, heating coils, valves, and similarly enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated.

STANDARD SAFETY DESIGNATIONS (partial list, paraphrased from NFPA 306 Subsections 2-3.1 through 2-3.5, and Subsection 6-3.2)

SAFE FOR WORKERS: Means that in the compartment of space so designated (a) the oxygen content of the atmosphere is at least 19.5 percent by volume, and that, (b) toxic materials in the atmosphere are within permissible concentrations; and that, (c) the residues are not capable of producing toxic materials under existing atmospheric conditions while maintained as directed on the Marine Chemist's Certificate.

NOT SAFE FOR WORKERS Means that in the compartment of space so designated, the requirements of Safe for Workers have not been met.

ENTER WITH RESTRICTIONS. Means that in any compartment or space so designated, entry for work may be made only if conditions of proper protective equipment, clothing, and time are specified.

SAFE FOR HOT WORK: Means that in any compartment designated: (a) oxygen content of the atmosphere is at least 19.5 percent by volume, with the exception of inerted spaces or where external hot work is to be performed, and that, (b) the concentration of flammable materials in the atmosphere is below 10 percent of the lower flammable limit, and that, (c) the residues are not capable of producing a higher concentration than permitted by (b) above under existing atmospheric conditions in the presence of fire, and while maintained as directed on the Marine Chemist's Certificate, and further, that, (d) all adjacent spaces containing or having contained flammable or combustible materials have been cleaned sufficiently to prevent the spread of fire, or are satisfactorily inerted, or, in the case of fuel tanks or lube oil tanks, or engine room or fire room bilges, have been treated in accordance with the Marine Chemist's requirements.

NOT SAFE FOR HOT WORK Means that in the compartment so designated, the requirements of Safe for Hot Work have not been met.

CHEMIST'S ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on vessels and have found the condition of each to be in accordance with its assigned designation.

Undersigned acknowledges receipt of this Certificate under Section 2-6 of NFPA 306 and its conditions and limitations under which it was issued.

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is subject to compliance with all qualifications and instructions.

Signed

Thomas D. Beck

02-12-02

# Tank Destruction Certificate

DICE 01552



**TANK DESTRUCTION CERTIFICATE**

**DATE:** March 29, 2002

**CONTRACTOR:** Petro Builders, Inc.

**GENERATOR:** Air Liquide

**JOB SITE:** Air Liquide  
8832 Dice Road  
Santa Fe Springs, CA.

**DESCRIPTION  
TANK & PIPING:** 1 - 6,000 gallon steel gasoline tank  
& all associated piping

**REFERENCE NO:** Marine Chemist Certificate #10717  
February 12, 2002

This is to certify receipt and acceptance of the tanks and associated piping specified above. All materials listed above will be completely destroyed for scrap purposes only.

  
\_\_\_\_\_  
AUTHORIZED SIGNATURE

**DICE 01553**

# Certificate Of Analysis

DICE 01554

# CHEMTEK ENVIRONMENTAL LABORATORIES INC.

"An environment-friendly company"

14140 E. Alondra Blvd. Suite A, Santa Fe Springs, CA 90670  
Tel. (562) 926-9848 FAX (562) 926-8324  
CA Dept of Health Accredited. (ELAP No. 1435)

## CERTIFICATE OF ANALYSIS

Job No. 202026

Date: 02-13-02

This is the Certificate of Analysis for the following samples:

Client : Petro Builders  
Contact person : Joanna Shultz  
Project No. :  
Project : Air Liquide  
Project site :  
Sample date : 02-12-02  
Date received : 02-12-02  
Number of samples : 3  
Sample type : Soil  
Sample condition : Good  
Sampling method : EPA 5035 (Encore)

Samples were labeled as follows:

### SAMPLE IDENTIFICATION

### LABORATORY NUMBER

T1-1	202026-01A
T1-2	202026-02A
SP-1	202026-03A

Reviewed and Approved:



Michael C.C. Lu  
Laboratory Director

DICE 01555

CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT

Client : Petro Builders  
Project No. :  
Project : Air Liquide  
Project site:

Job No. : 202026

Date:02-13-02

Analysis: EPA 8015M (Acetone) Unit: mg/kg or ppm

Sample ID : See below  
Sample type : Soil  
Sampling method : EPA 5035 (Encore)  
Sample date : 02-12-02  
Analysis date : 02-13-02

Sample IDs	Acetone
Client Lab	

T1-1	01A	ND
------	-----	----

T1-2	02A	ND
------	-----	----

SP-1	03A	ND
------	-----	----

Method Blank		ND
--------------	--	----

Method Detection Limit	5.0
------------------------	-----

ND: Not Detected at the specified limit.

DICE 01556



**CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT**

Client : Petro Builders  
Project No. :  
Project : Air Liquide  
Project site :

Job No. : 202026

Date: 02-13-02

Analysis: EPA 8260B (Volatile Organics by GC-MS) Unit:  $\mu$ g/kg or ppb  
page 1 of 2

Sample ID : See below  
Sample matrix : Soil  
Sampling method: EPA 5035

Sample date : 02-12-02  
Analysis date : 02-13-02

COMPOUND	T1-1 01A (ppb)	T1-2 02A (ppb)	SP-1 03A (ppb)	Detection Limit (ppb)
Benzene	ND	ND	ND	2
Bromobenzene	ND	ND	ND	2
Bromochloromethane	ND	ND	ND	2
Bromodichloromethane	ND	ND	ND	2
Bromoform	ND	ND	ND	2
Bromomethane	ND	ND	ND	2
n-Butylbenzene	ND	ND	ND	2
sec-Butylbenzene	ND	ND	ND	2
tert-Butylbenzene	ND	ND	ND	2
Carbon Tetrachloride	ND	ND	ND	2
Chlorobenzene	ND	ND	ND	2
Chloroethane	ND	ND	ND	2
Chloroform	ND	ND	ND	2
Chloromethane	ND	ND	ND	2
2-Chlorotoluene	ND	ND	ND	2
4-Chlorotoluene	ND	ND	ND	2
2-Chloroethyl vinyl ether	ND	ND	ND	2
Dibromochloromethane	ND	ND	ND	2
1,2-Dibromo-3-chloropropane	ND	ND	ND	2
1,2-Dibromoethane (EDB)	ND	ND	ND	2
Dibromomethane	ND	ND	ND	2
1,2-Dichlorobenzene	ND	ND	ND	2
1,3-Dichlorobenzene	ND	ND	ND	2
1,4-Dichlorobenzene	ND	ND	ND	2
Dichlorodifluoromethane	ND	ND	ND	2
1,1-Dichloroethane	ND	ND	ND	2
1,2-Dichloroethane	ND	ND	ND	2
1,1-Dichloroethene	ND	ND	ND	2
cis-1,2 Dichloroethene	ND	ND	ND	2
trans-1,2-Dichloroethene	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	2
1,3-Dichloropropane	ND	ND	ND	2

continued next page

ND: Not detected at the specified limit.

DICE 01557

**CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT**

Job No. 202026

Analysis: EPA 8260B (Volatile Organics by GC-MS) Unit:  $\mu$ g/kg or ppb  
page 2 of 2

Sample ID : See below  
Sample matrix : Soil  
Sampling method: EPA 5035

Sample date : 02-12-02  
Analysis date: 02-13-02

COMPOUND	T1-1 01A (ppb)	T1-2 02A (ppb)	SP-1 03A (ppb)	Detection Limit (ppb)
2,2-Dichloropropane	ND	ND	ND	2
1,1-Dichloropropene	ND	ND	ND	2
cis-1,3-Dichloropropene	ND	ND	ND	2
trans-1,3-Dichloropropene	ND	ND	ND	2
Ethylbenzene	ND	ND	ND	2
Hexachlorobutadiene	ND	ND	ND	2
Isopropylbenzene	ND	ND	ND	2
4-Isopropyltoluene	ND	ND	ND	2
Methylene Chloride	ND	ND	ND	2
Naphthalene	ND	ND	ND	2
n-propylbenzene	ND	ND	ND	2
Styrene	ND	ND	ND	2
1,1,1,2-Tetrachloroethane	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	2
Tetrachloroethene (PCE)	ND	ND	ND	2
Toluene	ND	ND	ND	2
1,2,3-Trichlorobenzene	ND	ND	ND	2
1,2,4-Trichlorobenzene	ND	ND	ND	2
1,1,1-Trichloroethane	ND	ND	ND	2
1,1,2-Trichloroethane	ND	ND	ND	2
Trichloroethene	ND	ND	ND	2
Trichlorofluoromethane	ND	ND	ND	2
1,2,3-Trichloropropane	ND	ND	ND	2
1,2,4-Trimethylbenzene	ND	ND	ND	2
1,3,5-Trimethylbenzene	ND	ND	ND	2
Vinyl Chloride	ND	ND	ND	2
Total Xylenes	ND	ND	ND	4

Additional compounds

Acetone	ND	ND	ND	15
Ethanol	ND	ND	ND	15
2-Butanone (MEK)	ND	ND	ND	15
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	15
2-Hexanone	ND	ND	ND	15
Methyl Tert. Butyl Ether (MTBE)	ND	ND	ND	2
Ethyl Tert. Butyl Ether (ETBE)	ND	ND	ND	5
Diisopropyl Ether (DIPE)	ND	ND	ND	5
Tert. Amyl Methyl Ether (TAME)	ND	ND	ND	5
T-Butyl Alcohol (TBA)	ND	ND	ND	20

ND: Not detected at the specified limit.

DICE 01558

CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT

QA/QC REPORT

EPA 8015M (Acetone)  
Unit: mg/kg

Job No. : 202026  
Lab Sample ID. : 202026-03A  
Date Performed : 02-13-02

Analyte	ORIG <u>Result</u>	SPK <u>CONC</u>	MS <u>MS</u>	% <u>MS</u>	MSD <u>MSD</u>	% <u>MSD</u>	% <u>RPD</u>	ACP <u>%MS</u>	ACP <u>%RPD</u>
Acetone	ND	150	165	110.0	144	96.0	13.6	80-120	0-20

CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT

QA/QC REPORT

EPA 8260B  
Unit:  $\mu\text{g/kg}$

Job No. : 202026  
Lab Sample ID : 202026-03A  
Date Performed : 02-13-02

<u>ANALYTE</u>	<u>ORIG.</u> <u>RESULT</u>	<u>SPK</u> <u>CONC</u>	<u>MS</u>	<u>%</u> <u>MS</u>	<u>MSD</u>	<u>%</u> <u>MSD</u>	<u>RPD</u>	<u>ACP</u> <u>%MS</u>	<u>ACP</u> <u>RPD</u>
1,1-DCE	ND	20.0	21.3	106.5	20.4	102.0	4.3	70-130	0-30
Benzene	ND	20.0	22.3	111.5	19.4	97.0	13.9	70-130	0-30
TCE	ND	20.0	21.0	105.0	19.0	95.0	10.0	70-130	0-30
Toluene	ND	20.0	22.0	110.0	20.2	101.0	8.5	70-130	0-30
Chloro benzene	ND	20.0	21.4	107.0	19.8	99.0	7.8	70-130	0-30

DICE 01560

## CHAIN OF CUSTODY RECORD

Log Number 202026

Client name <u>Petro Builders</u>				Project # <u>Air Liquide</u>		Analyses required									
Address <u>10609 Painter Ave</u>				Phone # <u>(562) 946-2285</u> Fax # <u>(562) 946-5345</u>		<u>80403 (acetone)</u> <u>8015 (acetone)</u> <u>Hazardous sample</u> <u>Special handling required</u>									
City, State, Zip <u>SFS CA</u>				Report attention <u>Joanna Shultz</u>											
Sample number	Date Sampled	Time Sampled	Type* See key below	Sampled by <u>Diane Becker</u>	Number of containers	Remarks									
<u>T1-1</u>	<u>2/12/02</u>		<u>SC</u>		<u>2</u>	<u>X</u>	<u>X</u>								
<u>T1-2</u>	<u>↓</u>		<u>↓</u>		<u>2</u>	<u>X</u>	<u>X</u>								
<u>SP-1</u>	<u>↓</u>		<u>↓</u>		<u>2</u>	<u>X</u>	<u>X</u>								

Signature	Print Name	Company	Date	Time
Relinquished by <u>[Signature]</u>	<u>Diane Becker</u>	<u>Advanced GeoEnvironmental</u>	<u>2/12/02</u>	<u>3:05</u>
Received by <u>[Signature]</u>	<u>MICHAEL Lu</u>	<u>Chem Tek Laboratory</u>	<u>2/12/02</u>	<u>3:05</u>
Relinquished by				
Received by				
Relinquished by				
Received by Laboratory				

## CHEMTEK ENVIRONMENTAL LABORATORIES INC.

14140 Alondra Boulevard, Suite A  
 Santa Fe Springs, Ca. 90670  
 Tel: (562) 926-9848 Fax: (562) 926-8324

DICE 01561

## Note:

Samples are discarded 30 days after results are reported unless other arrangements are made.  
 Hazardous samples will be returned to client or disposed of at client expense

\* Key AQ-Aqueous NA-Nonaqueous SL-Sludge GW-Groundwater SO-Soil OT-Other PE-Petroleum

DISTRIBUTION: WHITE with report / YELLOW To CHEMTEK / PINK To courier

# Compaction Report

DICE 01562

# DREW ASSOCIATES CORPORATION

## ***GEO TECHNICAL REPORT***

### EXCAVATION BACKFILL COMPACTION

AIR LIQUIDE  
8832 Dice Road  
Santa Fe Springs, California

Prepared for:

PETRO BUILDERS, INC.  
10609 Painter Avenue  
Santa Fe Springs, California 90670

W.O. 200207

March 8, 2002

**DICE 01563**

March 8, 2002

W.O. 200207

PETRO BUILDERS, INC.  
10609 Painter Avenue  
Santa Fe Springs, California 90670

**Subject:     *Excavation Backfill Compaction Report***  
***Air Liquide, 8832 Dice Road, Santa Fe Springs, California***

ATTN.: Mr. Bob Girard

Mr Girard:

Forwarded herewith is the Rough Grade Compaction Report for the excavation backfill at the above site. A brief summary of backfill and compaction operations is included.

**OVEREXCAVATION** An Acetone UST was removed and exported, resulting in an excavation. DREW ASSOCIATES CORPORATION (DAC) was contracted to test the backfill for compaction.

#### **BOTTOM OBSERVATION AND RECOMMENDATIONS**

The bottom of the excavation was observed by DAC personnel on 2/19/02. The excavation was observed to penetrate to a maximum depth of 9' below existing grade (-9'). The bottom of the excavation was processed, compacted, tested for density and accepted for backfill.

#### **BACKFILL AND COMPACTION**

Backfill soil consisted entirely of imported material. Backfill soils were placed in subsequent lifts of 6" - 8" and compacted by rolling with a sheepsfoot wheel attached to the boom of Caterpillar® backhoe.

Compaction testing was performed by the sand cone method, ASTM:D-1556-90. Vertical increments of fill between compaction tests did not exceed one foot; volumetric increments did not exceed 500 cubic yards of fill. The approximate locations of the Compaction Tests are illustrated on *Figure 1: Compaction Tests Locations*.

A maximum density analysis was performed on the imported materials at intervals not exceeding 1000 cubic yards. The backfilled material was compacted to a minimum per cent compaction of 90% relative to the following standards (continued next page):

***ASTM: D-1557-91, METHOD "A" (Soil Type 1)***  
***4 inch diameter mold, 1/30 ft³***  
***5 layers/25 blows per layer, 10 lb. hammer dropped 18 inches.***



**BACKFILL AND COMPACTION (cont'd)****ASTM: D-1557-91, METHOD "C" (Soil Types 2,3,4)****6 inch diameter mold, 1/13.333 ft<sup>3</sup> volume****5 layers/56 blows per layer, 10 lb. hammer dropped 18 inches.****Table I: Maximum Density Analyses**

SOIL TYPE	GENERAL CLASSIFICATION	OPTIMUM MOISTURE %	MAXIMUM DRY DENSITY, LBS/CU. FT.
1	Native- Dark Brown very silty sand fine sand with clay (SC-SM)	11.5	126.0
2	IMPORT/NATIVE MIX- Brown gravelly silty sand with clay (GC)	9.5	132.0
3	IMPORT/PEA GRAVEL MIX- Brown gravelly sand (GW)	8.0	134.0
4	IMPORT- Brown medium coarse sand (SP)	10.0	130.0

**Table II: Compaction Tests Results - Excavation Backfill Area**

Test No.	Test Depth Below subgrade, ft.	Moisture, Per Cent of Dry Wt.	Dry Unit Weight, Lbs./Cu.Ft.	Per Cent Relative Compaction	Soil Type	Test Date
1	9.0	12.0	116.1	92	1	2/19/02
2	7.0	8.9	123.1	93	2	2/19/02
3	5.0	9.8	126.2	94	3	2/19/02
4	3.0	8.8	124.6	94	3	2/19/02
5	1.5	10.2	122.0	94	4	2/19/02
6	0.0	11.1	122.2	94	4	2/19/02

Note: 0 = rough subgrade

### **LIMITATIONS**

Our recommendations are based on the technical information, our understanding of the proposed project, and our experience in the geotechnical field. We do not guarantee the performance of the project, only that our geological and engineering work and judgments meet the standard of care in our profession at this time.

### **CONCLUSION**

Density tests results indicate adequate compaction at the locations and elevations tested, on the day tested. The present subgrade may require reworking and recompaction if left exposed for more than a few days or affected by adverse weather conditions. Pavement sections should be designed for expected traffic loads by a professional engineer.

*The client and property owner are hereby advised and cautioned that compacted fill material, native soils and imported material may have different consolidation potentials, unequal expansion indices and dissimilar vertical bearing values.*

### **CLOSURE**

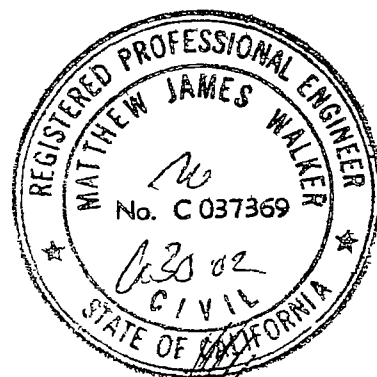
Our findings were made and recommendations prepared in accordance with generally accepted professional engineering practices, and no further warranty is implied nor made. This report is subject to review by the controlling authorities for this project. We appreciate this opportunity to be of assistance.

Please contact us if you have any questions.

Respectfully submitted,  
DREW ASSOCIATES CORPORATION



Drew Haney, Principal  
C.E.G. #EG2091  
DH/ct



Matthew James Walker  
R.C.E. #C037369

# **Certificate of Compliance for Compacted Fill Material**

**Client:** PETRO BUILDERS, INC.  
**Location of fill:** Acetone UST excavation backfill  
**Fill Material:** Native and Imported Soil  
**Tract:** Unknown  
**Lot no.:** Unknown  
**Site:** Air Liquide  
**Site address:** 8832 Dice Road, Santa Fe Springs, California  
**Owners name:** Unknown  
**Owner's address:** Unknown  
**Per report on our project no.:** W.O. 200207  
**Date fill operations started on project:** 02/19/02  
**Date fill operations completed:** 02/19/02

## ***To the Superintendent of Building:***

\* I hereby certify that I have personally observed and tested the placing of fill on the above described property, and, on the basis of these inspections and tests, it is my opinion that the fill was placed in compliance with the Uniform Building Code.

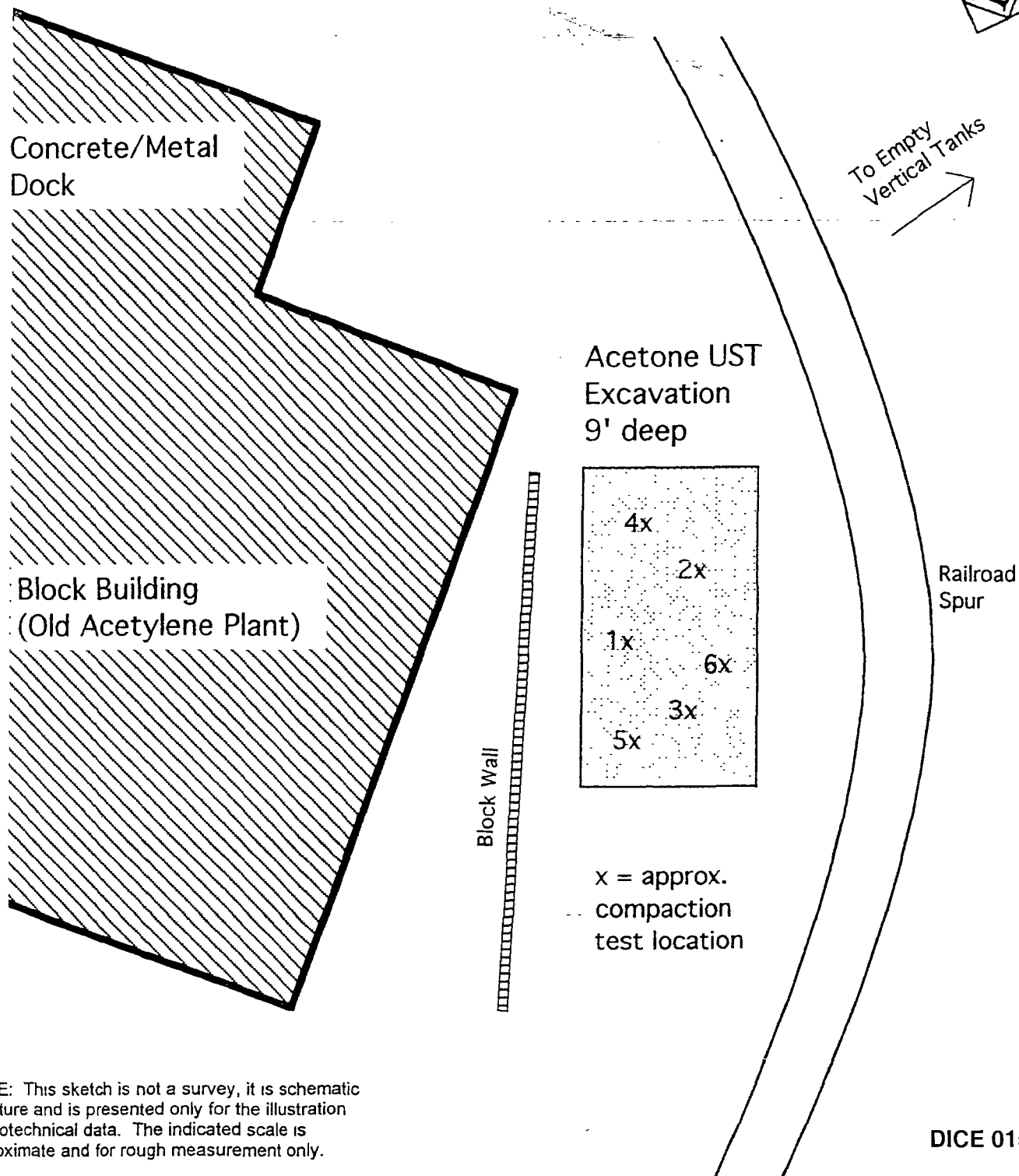
  

---

**Civil Engineer: MATTHEW JAMES WALKER**

\*For the purposes of this certificate, to "have personally observed and tested" shall include observation and testing by any qualified person responsible to the licensed engineer signing this certificate. The full responsibility shall be assumed by the licensed engineer whose signature is affixed hereon

# Figure 1: Compaction Tests Locations



NOTE: This sketch is not a survey, it is schematic in nature and is presented only for the illustration of geotechnical data. The indicated scale is approximate and for rough measurement only.

PETRO BUILDERS, INC.  
Air Liquide  
8832 Dice Road  
Santa Fe Springs, California

DREW ASSOCIATES

w.o.

scale

date

200207

1" = ~10'

2/19/02

# Soil Sample Report

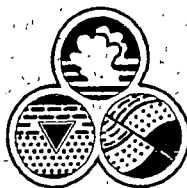
DICE 01569

**Soil Sampling Following Removal of an Underground Storage Tank**  
**Air Liquide, 8832 Dice Road, Santa Fe Springs, California**

**AGE Project No. LA 706J3.953**  
**05 April 2002**

***PREPARED FOR:***  
**Petro Builders, Inc.**

***PREPARED BY:***

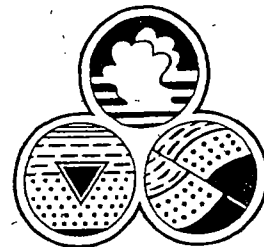


***Advanced GeoEnvironmental, Inc.***

***3315 East Miraloma Avenue, Suite 117, Anaheim, California 92806, Phone (714) 996-5151 • Fax (714) 996-5182***  
***837 Shaw Road, Stockton, California 95215, Phone (209) 467-1006 • Fax (209) 467-1118***  
***2318 Fourth Street, Santa Rosa, California 95404, Phone (707) 570-1418 • Fax (707) 570-1461***

**DICE 01570**

# Advanced GeoEnvironmental, Inc.



05 April 2002  
AGE Project No. LA 706J3.953

Ms. Joanna Shultz  
Petro Builders, Inc.  
10609 Painter Avenue  
Santa Fe Springs, California 90670

**Subject: Soil Sampling Following Removal of an Underground Storage Tank -  
Air Liquide, 8832 Dice Road, Santa Fe Springs, California**

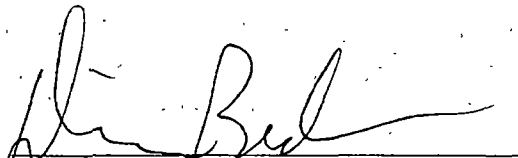
Dear Ms. Shultz:

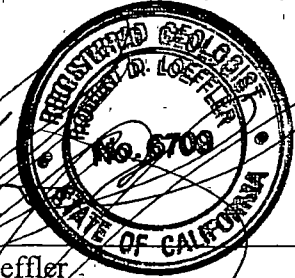
In accordance with your request, we have collected and analyzed soil samples following the removal of a single 6,000-gallon acetone tank at the above referenced address. The enclosed report describes the procedures and findings of this sampling program.

The opportunity to provide this service is greatly appreciated. If you have any questions regarding this matter, please feel free to call our office at (714) 996-5151.

Sincerely,

**Advanced GeoEnvironmental, Inc.**

  
Diane Becker  
Staff Geologist

  
Robert D. Loeffler  
Project Geologist  
California Registered Geologist No. 6709

Enclosures

cc: (3) addressee

DICE 01571

# Soil Sampling Following Removal of an Underground Storage Tank

Air Liquide

8832 Dice Road, Santa Fe Springs, California

## 1.0. INTRODUCTION

Advanced GeoEnvironmental, Inc. (AGE) was retained by Petro Builders, Inc. (PBI) to collect soil samples following the removal of a single underground storage tank (UST) at the referenced site. The site is located in a light industrial/business park area of moderate topographic relief at an approximate elevation of 150 feet above sea level (Figure 1 – *Location Map*, 7.5-Minute Whittier Quadrangle; USGS Topographic Series, Photorevised 1981).

### 1.1. UNDERGROUND STORAGE TANK FACILITY

The former UST was a 6,000-gallon plastic-coated steel tank previously containing acetone. The location of the former UST facility and the immediate surrounding area are depicted on Figure 2 – *Site Plan*.

### 1.2. DEPTH TO GROUND WATER INFORMATION

According to the Los Angeles County - Department of Public Works (LA-DPW), Hydrologic Section, the depth to ground water in well number 1632L, located approximately 1/8-mile west of the subject property, was 49.8 feet below surface grade (bsg) in March 2001. No ground water was encountered during the UST removal.

## 2.0. PROCEDURES

The UST was removed on 12 February 2002 under permit from the City of Santa Fe Springs and the County of Los Angeles (permits attached). Prior to removal, the UST was triple-rinsed by Adams Services and the rinseate was transported by Adams Services to Demenno Kerdoon for recycling (manifest attached). The UST was certified "safe to cold cut" by a marine chemist from Harbor Testing Laboratory (Marine Chemist Certificate No. 10717 attached). The UST was subsequently transported to Hugo Neu-Proler for disposal (tank destruction certificate attached). The UST removal was witnessed by Inspectors Raul Diaz of the Santa Fe Springs Fire Department (SFSFD).

### 2.1. SOIL SAMPLING

DICE 01572

Soil samples were collected beneath the former UST on 12 February 2002. Samples were collected approximately 2-feet beneath both ends of the former UST from the teeth of the excavator bucket (samples T1-1 and T1-2; Figure 2). One soil sample was also collected from the spoils pile (sample SP-1). The samples were collected by Ms. Diane Becker, staff geologist, working under the direction of Mr. Robert Loeffler, California Registered Geologist No. 6709. This sampling event was directed



of Mr. Robert Loeffler, California Registered Geologist No. 6709. This sampling event was directed by Inspector Diaz.

Each sample was obtained utilizing two 5-gram En-Core™ samplers in accordance with EPA method 5035 for sample preservation. The samples were labeled then placed in a chilled container for transport to Chemtek Environmental Laboratories, Inc. (CELI), a state-certified laboratory. Per SFSFD requirements, the samples were analyzed for volatile organic compounds (VOCs) with acetone as the target compound in accordance with EPA methods 8260B and 8015-modified, respectively.

### **3.0. FINDINGS**

No visual evidence of leakage from the UST was observed during the tank removal. However, an organic odor and discoloration in the soil were observed.

VOCs, including acetone, were not detected in any of the samples collected from the excavation or the spoils pile. The analytical report (CELI Job No. 202026), QA/QC Results and chain-of-custody form are attached.

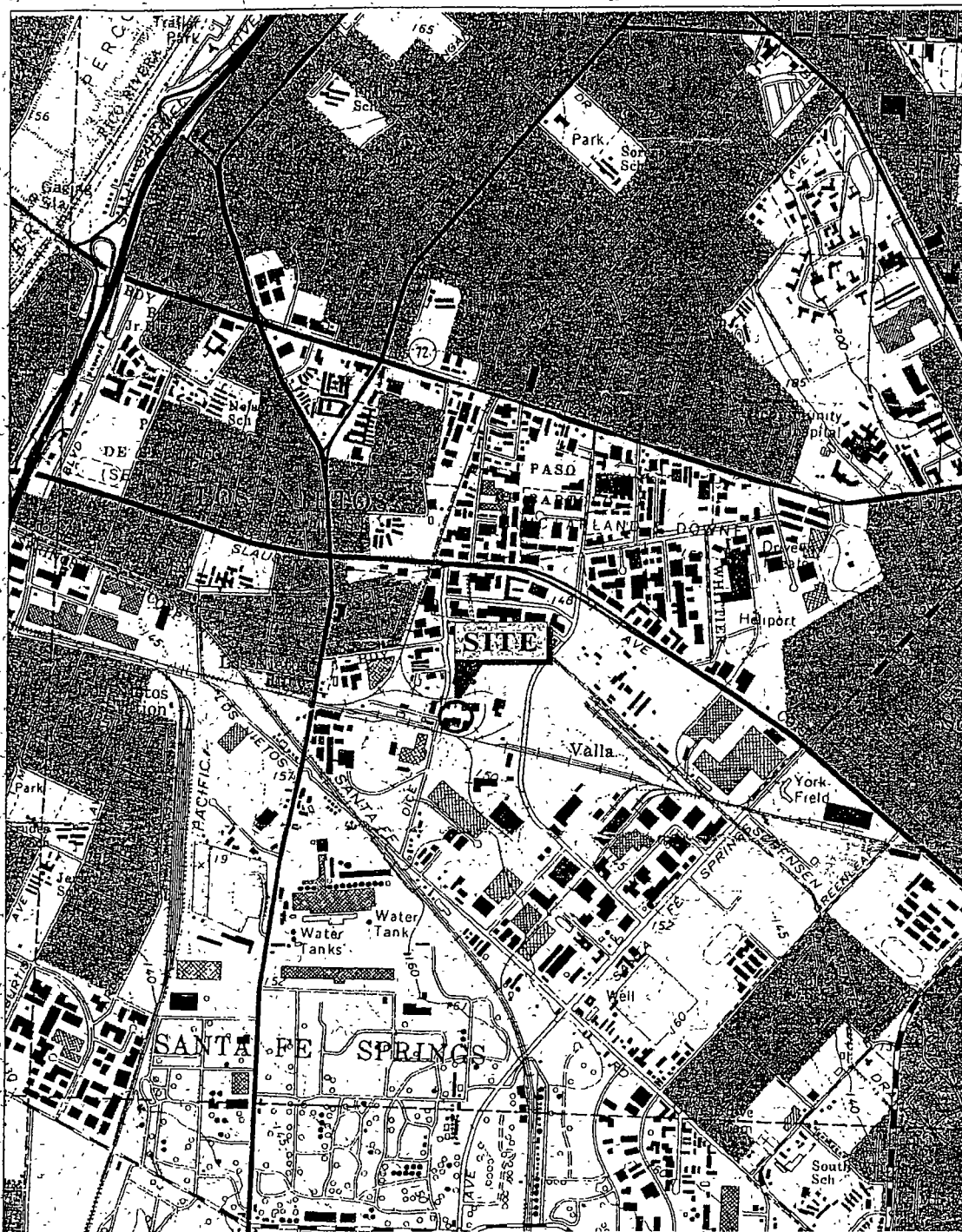
### **4.0. CONCLUSIONS**

Field observations and the analytical results indicate that no unauthorized release of acetone has occurred beneath the former UST location. Based on these findings, AGE recommends the SFSFD consider granting closure for this site.

### **5.0. LIMITATIONS**

Our professional services were performed using that degree of care and skill ordinarily exercised by environmental consultants practicing in this or similar localities. The findings were based mainly upon analytical results provided by independent laboratories. Interpretations of the subsurface conditions at the site for the purpose of this investigation are made from a limited number of available data points (i.e. soil samples) and subsurface conditions may vary away from these data points. No other warranty, expressed or implied, is made as to the professional recommendations contained in this report.

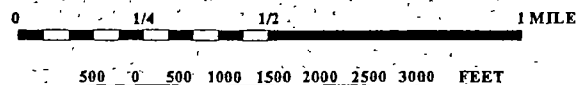
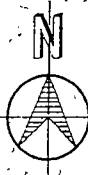
**DICE 01573**



Reference:

7.5 - Minute Whittier Quadrangle

USGS Topographic Series, Photorevised 1981



Advanced  
GeoEnvironmental, Inc.



# FIGURE 1 - LOCATION MAP

Air Liquide  
8832 Dice Road  
Santa Fe Springs, California

Project No.:  
LA 706J3.953

Date:  
05 April 2002

DICE 01574

Spoils Pile

SP-1

Concrete Block Wall

T1-2

T1-1

Removed 6,000-gallon acetone UST

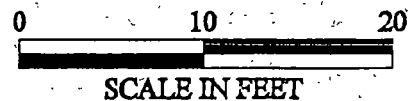
DICE 01575

## LEGEND:

T1-2



Soil Sample Location



SCALE IN FEET

**Advanced**  
GeoEnvironmental, Inc.



## FIGURE 2 - SITE PLAN

Air Liquide  
8832 Dice Road  
Santa Fe Springs, California

Project No.:  
LA 706J3.953

Date:  
05 April 2002

APR 5 2002 9:38AM

PETRO BUILDERS

No. 2067 P-53

City of Santa Fe Springs Fire Department • Certified Under Program Agency

11300 Greenstone Avenue

Santa Fe Springs, CA 90670

Phone (562) 944-9713 • Fax (562) 941-1817

## APPLICATION FOR STORAGE TANK CLOSURE

☐ ABOVEGROUND ☒ UNDERGROUNDFACILITY NAME: AIR LIQUIDE AMERICA CORP.LOCATION: 8832 DICERD. S.F.S.

## RESPONSIBLE PARTY INFORMATION:

Name AARON L. TESCH / AIR LIQUIDEMailing Address 8832 DICERD City SFS State CA Zip 90670Contact Person AARON L. TESCH Phone 562-464-5242☒ CONTRACTOR OR ☐ OWNER/OPERATOR AS CONTRACTOR Please indicate by checking appropriate box. A list of all subcontractors must be provided. List must include subcontractor name, address, phone number, scope of work, and a copy of the contractor's licenseName PETRO BUILDERS INC State License Number \_\_\_\_\_Address 16609 PAINTER AVE City SFS State CA Zip 90670Contact Person JOANNA SHULTZ Phone 562-9462285

CLOSURE REQUESTED: All closures under this application must meet the requirements and conditions listed below

☒ Permanent, tank removal, non-hazardous (see condition A attached)☐ Permanent, tank removal, hazardous (see condition B attached)☐ Permanent, closure in place (see condition C attached).☐ Temporary (see condition D attached)☐ Monitoring well abandonment (see Condition E attached)DATE TANK SYSTEM WILL BE CLEANED AND/OR EXCAVATED, OR CLOSED: 2/14/02 INTENDED DISPOSITION OF TANK DEMOLITIONINTENDED DESTINATION OF TANK SYSTEM (location name and address): 2721 Long Beach Ave. L.A. METAL INC

## COMPLETE THE FOLLOWING:

TANK ID NUMBER (use state tank ID# for underground tanks)	TANK MATERIAL	AGE IN YEARS	CAPACITY	LAST MATERIAL STORED/PAST MATERIAL STORED PER CC4673433 (P1)	TO BE COMPLETED BY FIRE DEPT.		
					DATE	INITIALS	COMMENTS
19049600094000001	steel w/ clad FRP	13 yrs.	6000	ACETONE			

Has an unauthorized release ever occurred at this site?

YES

☐

NO

☒

Have structural repairs ever been made to these tanks?

☐☒

Will new tanks be installed after this closure?

☐☒

How many tanks will remain after this closure?

ASTs \_\_\_\_\_

USTs 0

DICE 01576

By signature below the applicant certifies that they have read, understand, and agree to abide by the Storage Tank Closure Requirements and Conditions, the Notification/Permit Requirements and Contractor's Declaration, the Notice to Closure Permit Applicants, and all other conditions and limitations attached. Additional guidelines are available upon request. By signature below you declare you are authorized to certify on behalf of the tank operator that the identity of the last material or waste stored or accumulated in the tank is true and correct.

Applicant's Signature Ralph BarajasDate 1-23-02Print Name RALPH BARAJASPhone 562-9462285Title (please check): ☐ Owner ☐ Operator ☒ Contractor

TO BE COMPLETED BY THE SANTA FE SPRINGS FIRE DEPARTMENT  
 PERMISSION IS HEREBY GRANTED TO PROCEED WITH THE CLOSURE DESCRIBED ABOVE SUBJECT TO THE ATTACHED  
 CONDITIONS AND LIMITATIONS THIS PERMIT EXPIRES 180 DAYS FROM THE DATE BELOW.

Ncal Welland

\*Inspector [Signature]Date Approved 1/25/02

Apr - 5 - 2002 9:39AM

PEIRO-BUILDERS

No. 2067-1 P. 6

City of Santa Fe Springs Fire Department  
11300 GREENSTONE AVE • SANTA FE SPRINGS • CA 90670  
(562) 944-9713 • FAX (562) 941-1817

## PLAN REVIEW / PERMIT APPLICATION

Name of Facility AIR LIQUIDE AMERICA CORP.  
Project Address 8832 DICE RD. S.F.S.  
Project Contact AARON L. TESCH Telephone (562) 464-5242  
Architect/Engineer \_\_\_\_\_ Telephone ( ) \_\_\_\_\_  
Address \_\_\_\_\_

Description of work  
1 - 6,000 UST removal  
(acetone)

### CONTRACTOR INFORMATION (if applicable)

Contractor PETRO BUILDERS INC. Telephone (562) 946-2285  
Address 10609 PAINTER AVE. SFS  
License Class A License Number 241905 Expiration Date 9/30/02

### LICENSED CONTRACTOR DECLARATION (if applicable)

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Signature Rafael Barajas FOR PETRO BUILDERS Date 1/23/01

### OWNER/BUILDER DECLARATION

I hereby certify that I have read this application and state that the above information is correct. I agree to comply with all city ordinances and state laws relating to construction, and hereby authorize representatives of this city to enter upon mentioned property for inspection purposes.

Signature Rafael Barajas Date 1/23/01

✓	FIRE PROTECTION DIVISION	FEE	✓	ENVIRONMENTAL PROTECTION DIVISION	FEE
	Preliminary Plan Review			Preliminary Plan Review (Article 80)	
	3 or more Plan Re-Submittal			"H" Occupancy	
	Fire Alarm System			Emergency Alarm System	
	Fire Extinguishing System (Dry Chem System)			Closure Plan/Permit Review	
	Fire Sprinkler Systems			UST & AST (Installation/Removal/Modifications)	
	sq. ft. per floor			a. First Tank	46400
	New Construction Plan Review			b. Each Additional Tank	
	sq. ft. per floor			Chemical Classification & Occupancy Rating	
	High-Piled Combustible Stock (Racks/Draft			U.F.C./U.B.C. Tables Review	
	Curtains/Hose Racks/Smoke Vents)			Site Assessment/Mitigation	
	sq. ft. per floor			Asbestos Removal	
	Underground Fire Mains/Pumps/Tanks			IW Permit Review	
	Tenant Improvements (Structural/Sprinkler)			IW Plan Review	
	Flammable/Combustible Liquid Tank & Piping (UG & AG)			Plan Expedite	
	LPG Tanks			Other	
	Paint Spray Booths/Dip Tanks				
	Dust Collection Systems				
	On-site Fire Hydrant System	✓		FIRE SUPPRESSION	
	Drying Ovens			Stand-by Fire Watch	
	Tents and Air Support Structure			Fire Department Equipment w/ Crew	
	Compressed Gas System			Confined Space Back-up Team	
	Carnivals & Fairs				
	Monitoring Wells				
	Abandonment/Reabandonment of Oil Wells w/capping			OTHER	
	Gas Detection Systems				
	Soil Venting Systems				
	Plan Expedite				
	Other				
					DICE 01577

TOTAL DUE

\$46400

Rafael Barajas  
INSPECTOR

1/25/02



# WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)

Policy No. WC 969 0347 Company COMM. & IND. INS. CO.

Certified copy is hereby furnished.

Certified copy is filed with the county building inspection department.

to 1-31-02 Applicant Rafael Berenguer

## CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

This section need not be completed if the permit is for one hundred dollars (\$100) or less.

I certify that in the performance of the work for which this permit is used, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws.

to \_\_\_\_\_ Applicant \_\_\_\_\_

**TITLE TO APPLICANT:** If, after making this Certificate of Exemption, I should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

## LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 commencing with Section 7000 of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Number 241905 Lic. Class A

Contractor PETRO BUILDERS INC. Date 1-31-02

I am exempt under Sec. 7-100-02

I & P.C. for this reason \_\_\_\_\_

Signature \_\_\_\_\_ Date: \_\_\_\_\_

as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended to be offered for sale (Section 7044, Business and Professions Code.)

as owner of the property, am exclusively contracting with licensed contractors to construct the project (Section 7044, Business and Professions Code.)

## CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, C.)

Owner's Name \_\_\_\_\_

Owner's Address \_\_\_\_\_

I certify that I have read this application and state under penalty of perjury that the above information is correct. I agree to comply with county ordinances and State laws relating to building construction, and hereby authorize representatives of this County to enter upon the mentioned property for inspection purposes.

Signature Rafael Berenguer Date 1/31/02  
Agent of Applicant or Agent

# APPLICATION FOR BUILDING PERMIT

## COUNTY OF LOS ANGELES

## BUILDING AND SAFETY

BUILDING ADDRESS <u>8832 DICE RD.</u>		
CITY <u>STAFF SPRINGS</u>	ZIP <u>90670</u>	
SIZE OF LOT	NO. OF BLDGS. NOW ON LOT	
TRACT	BLOCK	LOT NO.
ASSESSOR MAP BOOK	PAGE	PARCEL
OWNER <u>AIR LIQUIDE AMER</u>	TEL NO. <u>562 461524</u>	
ADDRESS <u>8832 DICE RD</u>		
CITY <u>S.F.S.</u>	ZIP <u>90670</u>	
ARCHITECT OR ENGINEER	TEL NO.	
ADDRESS		
CONTRACTOR <u>PETRO BUILDERS INC.</u>	TEL NO. <u>906 2285</u>	
ADDRESS <u>16609 PAINTER</u>	LIC. NO. <u>241905</u>	
CITY <u>S.F.S.</u>	LIC. CLASS <u>A</u>	
SQ. FT. SIZE	NO. OF STORIES	NO. OF FAMILIES
DESCRIPTION OF WORK <u>REMOVAL OF (1) 6000 GALL. U.G. TANK</u>		
USE OF EXISTING BLDG.		
APPLICANT (PRINT)		TEL NO.
ADDRESS		
WILL THE APPLICANT OR FUTURE BUILDING OCCUPANT HANDLE A HAZARDOUS MATERIAL OR A VENTURE CONTAINING A HAZARDOUS MATERIAL EQUAL TO OR GREATER THAN THE AMOUNTS SPECIFIED ON THE HAZARDOUS MATERIALS INFORMATION GUIDE? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
WILL THE INTENDED USE OF THE BUILDING BY THE APPLICANT OR FUTURE BUILDING OCCUPANT REQUIRE A PERMIT FOR CONSTRUCTION OR MODIFICATION FROM THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)? SEE PERMITTING CHECKLIST FOR GUIDANCE. YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
I HAVE READ THE HAZARDOUS MATERIALS INFORMATION GUIDE AND THE SCAQMD PERMITTING CHECKLIST. I UNDERSTAND MY REQUIREMENTS UNDER THE LOS ANGELES COUNTY CODE, TITLE 2, CHAPTER 2.20 SECTIONS 2.20.100 THROUGH 2.20.140 CONCERNING HAZARDOUS MATERIALS REPORTING AND FOR OBTAINING A PERMIT FROM THE SCAQMD.		
Signature <u>Rafael Berenguer</u> OWNER OR AGENT		
P.C. FEE	PERMIT FEE <u>121.00</u>	
	ISSUANCE FEE <u>20.00</u>	
INVESTIGATION FEE	ISSUANCE FEE <u>141.00</u>	

BUILDING ADDRESS <u>8832 DICE RD.</u>			
LOCALITY <u>S.F.S.</u>			
NEAREST CROSS ST.			
USE ZONE	MAP NO.		
SPECIAL CONDITIONS			
WITHIN 1000 FT. OF SCHOOL?		YES	NO
DISTRICT <u>4.05</u>	GROUP <u>DEVELOP. CC</u>	TYPE CONST. <u>TANK</u>	FIRE ZONE <u>III</u>
PROCESSED BY <u>[Signature]</u>			
STATISTICAL CLASSIFICATION CLASS NO. <u>Single</u> DWELL UNITS		APT	CONDO
REQUIRED SETBACK	YARD	HWY	TOTAL SETBACK FROM PROP LINE
FRONT			
P.L.			
SIDE			
P.L.			
SEWER MAP			
BK PG			
VALUATION			
\$			
\$			
LOMA P/O #			
LOMA Perm #			
FINAL DATE			
FINAL BY			

DICE 01578

SEE REVERSE FOR EXPLANATORY LANGUAGE

APR 5 2002 9:39AM

PETRO BUILDERS AND SELLING

No. 2067-00107

VALIDATION

IN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No	Manifest Document No	2 Page 1 of 1	Information in the shaded areas is not required by Federal law
3 Generator's Name and Mailing Address <b>AIR LIQUIDE</b> <b>3802 HIGH ROAD, SANTA FE SPRINGS, CA 90570</b>		<b>CA1190000211160</b>	<b>0100001</b>		
4 Generator's Phone (562) <b>454-5241</b>					
5 Transporter 1 Company Name <b>ADAMS SERVICES, INC.</b>		6 US EPA ID Number <b>CA119022123666</b>			
7 Transporter 2 Company Name		8 US EPA ID Number			
9 Designated Facility Name and Site Address <b>REPAIR/REDOOR</b> <b>2007 N. ALAMEDA ST.</b> <b>CORTEZ, CA 90222</b>		10 US EPA ID Number <b>CA1190000133552</b>			
11 US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12 Container's No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. <b>(OIL &amp; WATER, NON-F.C.R.A.)</b> <b>HAZARDOUS WASTE LIQUID</b>		<b>001</b>	<b>T</b>	<b>001/002</b>	<b>G</b>
b.					
c.					
d.					
15. Special Handling Instructions and Additional Information <b>DO NOT WEAR PROTECTIVE GEAR</b> <b>NO SMOKING; E.R.G. #27</b>  <b>Contractors: Petro Builders, Inc.</b>					
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name <b>JOHN M. WEINSTEIN</b>		Signature <i>[Signature]</i>		Month <b>01</b>	Day <b>12</b>
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <b>KEVIN ADAMS</b>		Signature <i>[Signature]</i>		Month <b>01</b>	Day <b>12</b>
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month	Day
19 Discrepancy Indication Space					
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name					
Signature		Month		Day	Year

DO NOT WRITE BELOW THIS LINE.

DICE 01579

APR 10 2002 9:38AM PETRO BUILDERS  
Thomas D. Beck & Assoc., Inc.  
dba HARBOR TESTING LABORATORY  
24 HOUR PHONE: (562) 492-9646

8154-004 MARINE CHEMIST CERTIFICATE

Serial # 10717

Survey Requested By: PETROBUILDERS  
Vessel: UNDERGROUND TANK  
Vessel Owner or Agent: AIR LIQUIDE  
Type of Vessel: U.S.T.  
Last Cargo: ACETONE  
Tests Performed: LEL, O<sub>2</sub>, VISUAL  
Date: 12 FEB 02  
Specific Location of Vessel: 8832 DICE RD  
Time Survey Completed: 1315 HRS

UNDERGROUND STORAGE  
TANK MARKED WITH  
RED SPRAY PAINT  
10717

TESTED: 0% LEL  
20.8% O<sub>2</sub>

NOT SAFE FOR WORKERS  
NOT SAFE FOR HOT WORK  
TANK HAS BEEN CLEANED  
SAFE TO COLD LIFT TANK  
USING HYDRAULIC / PNEUMATIC TOOLS.

DICE 01580

USA MICROVAPOR IN 3236 CALIBRATED C. 0630 HRS 12 FEB 02

In the event of any physical or atmospheric adversely affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, or if any doubt, immediately stop all work and contact the undersigned Marine Chemist.

QUALIFICATIONS: Transfer of ballast or manipulation of valves or closure equipment tending to alter conditions in pipe lines, tanks or compartments subject to gas accumulation, unless specifically approved in this Certificate, requires inspection and endorsement or reissue of Certificate for the spaces so affected. All lines, vents, heating coils, valves, and similarly enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated.

STANDARD SAFETY DESIGNATIONS (partial list, paraphrased from NFPA 306 Subsections 2-3.1 through 2-3.5, and Subsection 6-3.2)

SAFE FOR WORKERS: Means that in the compartment of space so designated: (a) the oxygen content of the atmosphere is at least 19.5 percent by volume; and that, (b) toxic materials in the atmosphere are within permissible concentrations; and that, (c) the residues are not capable of producing toxic materials under existing atmospheric conditions while maintained as directed on the Marine Chemist's Certificate.

NOT SAFE FOR WORKERS: Means that in the compartment of space so designated, the requirements of Safe for Workers have not been met.

ENTER WITH RESTRICTIONS: Means that in any compartment or space so designated, entry for work may be made only if conditions of proper protective equipment, clothing, and time are specified.

SAFE FOR HOT WORK: Means that in any compartment designated: (a) oxygen content of the atmosphere is at least 19.5 percent by volume, with the exception of inerted spaces or where external hot work is to be performed; and that, (b) the concentration of flammable materials in the atmosphere is below 10 percent of the lower flammable limit; and that, (c) no residues are not capable of producing a higher concentration than permitted by (b) above under existing atmospheric conditions in the presence of fire, and while maintained as directed on the Marine Chemist's Certificate; and further, that, (d) all adjacent spaces containing or having contained flammable or combustible materials have been cleaned sufficiently to prevent the spread of fire, or are satisfactorily inerted, or, in the case of fuel tanks or lube oil tanks, or engine room or fire room bilges, have been treated in accordance with the Marine Chemist's requirements.

NOT SAFE FOR HOT WORK: Means that in the compartment so designated, the requirements of Safe for Hot Work have not been met.

CHEMIST'S ENDORSEMENT: This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on vessels and have found the condition of each to be in accordance with its assigned designation.

undersigned acknowledges receipt of this Certificate under Section 2-6 of NFPA 306 and holds conditions and limitations under which it was issued.

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is not subject to compliance with all qualifications and instructions.

Thomas D. Beck





**TANK DESTRUCTION CERTIFICATE**

**DATE:** March 29, 2002

**CONTRACTOR:** Petro Builders, Inc.


**GENERATOR:** Air Liquide

**JOB SITE:** Air Liquide  
8832 Dice Road  
Santa Fe Springs, CA.

**DESCRIPTION**  
**TANK & PIPING:** 1 - 6,000 gallon steel gasoline tank  
& all associated piping

**REFERENCE NO:** Marine Chemist Certificate #10717  
February 12, 2002

This is to certify receipt and acceptance of the tanks and associated piping specified above. All materials listed above will be completely destroyed for scrap purposes only.

  
AUTHORIZED SIGNATURE

**DICE 01581**

**CHEMTEK ENVIRONMENTAL LABORATORIES INC.****"An environment-friendly company"**

14140 E. Alondra Blvd. Suite A, Santa Fe Springs, CA 90670  
Tel. (562) 926-9848 FAX (562) 926-8324  
CA Dept of Health Accredited. (ELAP No. 1435)

**CERTIFICATE OF ANALYSIS**

Job No. 202026

Date: 02-13-02

This is the Certificate of Analysis for the following samples:

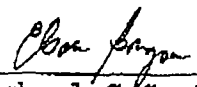
Client : Petro Builders  
Contact person : Joanna Shultz  
Project No. :  
Project : Air Liquide  
Project site :  
Sample date : 02-12-02  
Date received : 02-12-02  
Number of samples : 3  
Sample type : Soil  
Sample condition : Good  
Sampling method : EPA 5035 (Encore)

Samples were labeled as follows:

SAMPLE IDENTIFICATIONLABORATORY NUMBER

T1-1	202026-01A
T1-2	202026-02A
SP-1	202026-03A

Reviewed and Approved:

  
Michael C.C. Lu  
Laboratory Director

DICE 01582

CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT

Client : Petro Builders  
Project No. :  
Project : Air Liquide  
Project site:

Job No. : 202026

Date:02-13-02

Analysis: EPA 8015M (Acetone) Unit: mg/kg or ppm

Sample ID : See below  
Sample type : Soil  
Sampling method : EPA 5035 (Encore)  
Sample date : 02-12-02  
Analysis date : 02-13-02

Sample IDs		Acetone
Client	Lab	
T1-1	01A	ND
T1-2	02A	ND
SP-1	03A	ND
Method Blank		ND

Method Detection Limit 5.0

ND: Not Detected at the specified limit.

CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORTQA/QC REPORTEPA 8015M (Acetone)  
Unit: mg/kgJob No. : 202026  
Lab Sample ID. : 202026-03A  
Date Performed : 02-13-02

Analyte	ORIG Result	SPK CONC	MS	% MS	MSD	% MSD	% RPD	ACP %MS	ACP %RPD
Acetone	ND	150	165	110.0	144	96.0	13.6	80-120	0-20

**CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT**

Client : Petro Builders  
Project No. :  
Project : Air Liquide  
Project site :

Job No. : 202026

Date: 02-13-02

Analysis: EPA 8260B (Volatile Organics by GC-MS) Unit:  $\mu\text{g}/\text{kg}$  or ppb  
page 1 of 2

Sample ID : See below  
Sample matrix : Soil  
Sampling method: EPA 5035

Sample date : 02-12-02  
Analysis date : 02-13-02

COMPOUND	T1-1 01A (ppb)	T1-2 02A (ppb)	SP-1 03A (ppb)	Detection Limit (ppb)
Benzene	ND	ND	ND	2
Bromobenzene	ND	ND	ND	2
Bromochloromethane	ND	ND	ND	2
Bromodichloromethane	ND	ND	ND	2
Bromoform	ND	ND	ND	2
Bromomethane	ND	ND	ND	2
n-Butylbenzene	ND	ND	ND	2
sec-Butylbenzene	ND	ND	ND	2
tert-Butylbenzene	ND	ND	ND	2
Carbon Tetrachloride	ND	ND	ND	2
Chlorobenzene	ND	ND	ND	2
Chloroethane	ND	ND	ND	2
Chloroform	ND	ND	ND	2
Chloromethane	ND	ND	ND	2
2-Chlorotoluene	ND	ND	ND	2
4-Chlorotoluene	ND	ND	ND	2
2-Chloroethyl vinyl ether	ND	ND	ND	2
Dibromochloromethane	ND	ND	ND	2
1,2-Dibromo-3-chloropropane	ND	ND	ND	2
1,2-Dibromoethane (EDB)	ND	ND	ND	2
Dibromomethane	ND	ND	ND	2
1,2-Dichlorobenzene	ND	ND	ND	2
1,3-Dichlorobenzene	ND	ND	ND	2
1,4-Dichlorobenzene	ND	ND	ND	2
Dichlorodifluoromethane	ND	ND	ND	2
1,1-Dichloroethane	ND	ND	ND	2
1,2-Dichloroethane	ND	ND	ND	2
1,1-Dichloroethene	ND	ND	ND	2
cis-1,2-Dichloroethene	ND	ND	ND	2
trans-1,2-Dichloroethene	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	2
1,3-Dichloropropane	ND	ND	ND	2

continued next page

ND: Not detected at the specified limit.

DICE 01585

**CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORT**

Job No. 202026

Analysis: EPA 8260B (Volatile Organics by GC-MS) Unit: µg/kg or ppb  
page 2 of 2

Sample ID : See below  
Sample matrix : Soil  
Sampling method: EPA 5035

Sample date : 02-12-02  
Analysis date: 02-13-02

COMPOUND	T1-1 01A (ppb)	T1-2 02A (ppb)	SP-1 03A (ppb)	Detection Limit (ppb)
2,2-Dichloropropane	ND	ND	ND	2
1,1-Dichloropropene	ND	ND	ND	2
cis-1,3-Dichloropropene	ND	ND	ND	2
trans-1,3-Dichloropropene	ND	ND	ND	2
Ethylbenzene	ND	ND	ND	2
Hexachlorobutadiene	ND	ND	ND	2
Isopropylbenzene	ND	ND	ND	2
4-Isopropyltoluene	ND	ND	ND	2
Methylene Chloride	ND	ND	ND	2
Naphthalene	ND	ND	ND	2
n-propylbenzene	ND	ND	ND	2
Styrene	ND	ND	ND	2
1,1,1,2-Tetrachloroethane	ND	ND	ND	2
1,1,2,2-Tetrachloroethane	ND	ND	ND	2
Tetrachloroethene (PCE)	ND	ND	ND	2
Toluene	ND	ND	ND	2
1,2,3-Trichlorobenzene	ND	ND	ND	2
1,2,4-Trichlorobenzene	ND	ND	ND	2
1,1,1-Trichloroethane	ND	ND	ND	2
1,1,2-Trichloroethane	ND	ND	ND	2
Trichloroethene	ND	ND	ND	2
Trichlorofluoromethane	ND	ND	ND	2
1,2,3-Trichloropropane	ND	ND	ND	2
1,2,4-Trimethylbenzene	ND	ND	ND	2
1,3,5-Trimethylbenzene	ND	ND	ND	2
Vinyl Chloride	ND	ND	ND	2
Total Xylenes	ND	ND	ND	4

## Additional compounds

Acetone	ND	ND	ND	15
Ethanol	ND	ND	ND	15
2-Butanone (MEK)	ND	ND	ND	15
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	15
2-Hexanone	ND	ND	ND	15
Methyl Tert. Butyl Ether (MTBE)	ND	ND	ND	2
Ethyl Tert. Butyl Ether (ETBE)	ND	ND	ND	5
Diisopropyl Ether (DIPE)	ND	ND	ND	5
Tert. Amyl Methyl Ether (TAME)	ND	ND	ND	5
T-Butyl Alcohol (TBA)	ND	ND	ND	20

ND: Not detected at the specified limit.

DICE 01586

CHEMTEK ENVIRONMENTAL LAB.  
LABORATORY ANALYSIS REPORTQA/QC REPORTEPA 8260B  
Unit:  $\mu\text{g/kg}$ Job No. : 202026  
Lab Sample ID : 202026-03A  
Date Performed : 02-13-02

<u>ANALYTE</u>	<u>ORIG. RESULT</u>	<u>SPK CONC</u>	<u>MS</u>	<u>% MS</u>	<u>MSD</u>	<u>% MSD</u>	<u>RPD</u>	<u>ACP %MS</u>	<u>ACP RPD</u>
1,1-DCE	ND	20.0	21.3	106.5	20.4	102.0	4.3	70-130	0-30
Benzene	ND	20.0	22.3	111.5	19.4	97.0	13.9	70-130	0-30
TCE	ND	20.0	21.0	105.0	19.0	95.0	10.0	70-130	0-30
Toluene	ND	20.0	22.0	110.0	20.2	101.0	8.5	70-130	0-30
Chloro benzene	ND	20.0	21.4	107.0	19.8	99.0	7.8	70-130	0-30

DICE 01587

## CHAIN OF CUSTODY RECORD

Log Number

202026

Client name <b>Petro Builders</b>				Project # <b>Air Liquide</b>		Analyses required										
Address <b>10609 Painter Ave</b>				Phone # <b>(562) 946-2285</b> Fax # <b>(562) 946-5395</b>		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>QC1012 (Petroleum)</b>  <b>QC15 (Petroleum)</b> </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>Hazardous sample Special handling required</b> </div> </div>										
City, State, Zip <b>SFS CA</b>				Report attention <b>Joanna Schultz</b>												
Sample number	Date Sampled	Time Sampled	Type* See key below	Sampled by <b>IMANE Becken</b>	Number of containers	Remarks										
<b>TI-1</b>	<b>2/12/02</b>		<b>SO</b>		<b>2</b>	<b>X</b>	<b>X</b>									
<b>TI-2</b>	<b>↓</b>		<b>↓</b>		<b>2</b>	<b>X</b>	<b>X</b>									
<b>SP-1</b>	<b>✓</b>		<b>✓</b>		<b>2</b>	<b>X</b>	<b>X</b>									

Signature	Print Name	Company	Date	Time
Relinquished by <b>[Signature]</b>	<b>Diane Becken</b>	<b>Advanced Environmental</b>	<b>2/12/02</b>	<b>3:05</b>
Received by <b>[Signature]</b>	<b>MICHAEL L. CHEMTEK</b>	<b>ChemTek Laboratories</b>	<b>2/12/02</b>	<b>3:05</b>
Relinquished by				
Received by				
Relinquished by				
Received by Laboratory				

## CHEMTEK ENVIRONMENTAL LABORATORIES INC.

14140 Alondra Boulevard, Suite A  
 Santa Fe Springs, Ca. 90670  
 Tel: (562) 926-9848 Fax: (562) 926-8324

DICE 01588

## Note:

Samples are discarded 30 days after results are reported unless other arrangements are made.  
 Hazardous samples will be returned to client or disposed of at client expense.

\* Key: AQ-Aqueous NA-Nonaqueous SL-Sludge GW-Groundwater SO-Soil OT-Other PE-Petroleum

DISTRIBUTION: WHITE with report / YELLOW To CHEMTEK / PINK To courier



LM: E  
Richard Kallman  
11/19/01  
Need extension



Richard A. Kallman PE, REA  
Environmental Protection Specialist

Headquarters Fire Station  
11300 Greenstone Avenue  
Santa Fe Springs, CA 90670-4619

(562) 944-9713  
Fax (562) 941-1817  
[www.santafesprings.org](http://www.santafesprings.org)

DICE 01589



CITY OF SANTA FE SPRINGS FIRE DEPARTMENT  
Environmental Protection Division • Certified Unified Program Agency

11300 Greenstone Ave • Santa Fe Springs, CA • 90670. Tel (562) 944-9713 Fax (562) 941-1817

CUPA INSPECTION REPORT

PERMIT NO: 600094  
BUSINESS NAME: AIR LIQUIDE AMERICA  
SITE ADDRESS: 8832 DICE,  
FACILITY PHONE: 5629451383  
SIC CODE: 2813  
INSPECTOR: RAK/RD

☒ HMBP ☒ UST  
☒ HWG ☐ CalARP  
☒ Industrial Waste ☐ SPCC  
☒ UFC ☒ Storm Water  
☐ Tiered ☐ LQG  
☐ PBR-HHW ☐ Recycler

Inspected by: Richard Kallman

Date: 10 / 24 / 01

Refer to Title 19, 22, & 23 of the California Code of Regulations (CCR), Chapters 6.5, 6.7, 6.67, & 6.95 of the Health and Safety Code (CHSC) The following Code selections are either in Violation (V) of, or in Compliance (C), or compliance is Not Applicable (N)

Inspection consent given by: <u>Aaron Tesch</u>				
HAZARDOUS WASTE GENERATOR				
		V	C	N
1 Hazardous Waste Generator Permit	CITY ORD 97 400		<input checked="" type="checkbox"/>	
2 Hazardous Waste Determination made	CCR 66262 11		<input checked="" type="checkbox"/>	
3 EPA ID Number obtained	CCR 66262 12(a)		<input checked="" type="checkbox"/>	
4 Proper Disposal of Hazardous Waste	CHSC 25189 5(a)		<input checked="" type="checkbox"/>	
5 Operate/maintain to prevent release/fire	CCR 66265 31		<input checked="" type="checkbox"/>	
6 Labeling requirements met	CCR 66262 34(f)		<input checked="" type="checkbox"/>	
7 Hazardous Waste Accumulation Time	CCR 66262 34(e)(1)		<input checked="" type="checkbox"/>	
8 Hazardous Waste Containers sound	CCR 66265 171		<input checked="" type="checkbox"/>	
9 Hazardous Waste Containers not leaking	CCR 66265 173(b)		<input checked="" type="checkbox"/>	
10 Hazardous Waste Containers closed	CCR 66265 173(a)		<input checked="" type="checkbox"/>	
11 Separation of Incompatible HazMat	CCR 66265 177(c)		<input checked="" type="checkbox"/>	
12 Proper mngmt Contaminated Containers	CCR 66261 7(f)		<input checked="" type="checkbox"/>	
13 Storage Area inspected weekly	CCR 66265 174		<input checked="" type="checkbox"/>	
14 Tanks inspected daily	CCR 66262 34(d)(2)		<input checked="" type="checkbox"/>	
15 Satellite Accumulation requirements met	CCR 66262 34(e)		<input checked="" type="checkbox"/>	
16 Contingency Plan established	CCR 66265 51		<input checked="" type="checkbox"/>	
17 Waste Transported w/ proper documents	CCR 66262 20(a)		<input checked="" type="checkbox"/>	
18 Hazardous Waste Manifest complete	CCR 66262 23(a)		<input checked="" type="checkbox"/>	
19 Manifest copies sent to DTSC	CCR 66262 23(a)(4)		<input checked="" type="checkbox"/>	
20 Manifest copies retained for 3 years	CCR 66262 40(a)		<input checked="" type="checkbox"/>	
21 LDR documents retained for 3 years	CCR 66268 7(a)		<input checked="" type="checkbox"/>	
22 Milk-run operation record-keeping	CHSC 25144 6		<input checked="" type="checkbox"/>	
23 Biennial Report prepared	CCR 66262 41		<input checked="" type="checkbox"/>	
24 HazWaste Analysis retained for 3 years	CCR 66262 40(c)		<input checked="" type="checkbox"/>	
25 Personnel Training requirements met	CCR 66265 16		<input checked="" type="checkbox"/>	
26 SB14 requirements met for LQG's	CCR 67100 3		<input checked="" type="checkbox"/>	
HAZARDOUS WASTE GENERATOR continued...				
27 HazWaste Transported to proper TSDF	CHSC 25163		<input checked="" type="checkbox"/>	
28 HazWaste Transported by register hauler	CCR 66263 17		<input checked="" type="checkbox"/>	
29 Excluded Recyclable Mat record-keeping	CHSC 25143 2		<input checked="" type="checkbox"/>	
30 Recyclable Mat Reporting Form filed	CHSC 25143 10		<input checked="" type="checkbox"/>	
31 Used Oil Receipts complete/available	CHSC 25250 8(b)		<input checked="" type="checkbox"/>	
32 Proper management of Used Oil	CHSC 25250 4		<input checked="" type="checkbox"/>	
33 Used Oil not contaminated	CHSC 25250 7		<input checked="" type="checkbox"/>	
34 Proper management of Used Oil Filters	CCR 66266 130		<input checked="" type="checkbox"/>	
35 Proper management of Used Batteries	CCR 66266 81		<input checked="" type="checkbox"/>	
36 Proper mngmt. of Contaminated Rags	CHSC 25144 6		<input checked="" type="checkbox"/>	
HAZARDOUS MATERIALS BUSINESS PLAN				
37 Business Plan established and filed	CHSC 25503 5		<input checked="" type="checkbox"/>	
38 Business Plan updated/accurate	CHSC 25505		<input checked="" type="checkbox"/>	
39 Regulated Substances Reg completed	CHSC 25533(a)		<input checked="" type="checkbox"/>	
UNDERGROUND STORAGE TANK				
40 Tank meets requirements	CCR 23 Div. 3, Ch16		<input checked="" type="checkbox"/>	
41 Tank meets requirements	UFC Article 52		<input checked="" type="checkbox"/>	
42 Tank meets requirements	CHSC, Ch 6.7		<input checked="" type="checkbox"/>	
ABOVEGROUND PETROLEUM STORAGE TANK				
43 SPCC Plan complete per requirements	CHSC 25270 3		<input checked="" type="checkbox"/>	
TIERED PERMIT				
44 Authorization to treat Hazardous Waste	CHSC 25201(a)		<input checked="" type="checkbox"/>	
45 Certificate to financial assurance	CCR 67450 13(a)		<input checked="" type="checkbox"/>	
UNIFORM FIRE CODE				
46 Compliance for flam & combust liquids	UFC Article 79		<input checked="" type="checkbox"/>	
47 Compliance for Hazardous Materials	UFC Article 80		<input checked="" type="checkbox"/>	

NARRATIVE/COMMENTS

Aaron Tesch is sweep contact

need to update HMBP - send database to Aaron

① Need to remove UST

Clarifier - no solids

② ASTs - Mark as empty

③ sprinkler risers 5 year cert?

④ HMBP needs update

DICE 01590

Program Inspected: HMBP ☒ HWG ☒ LQG ☐ UST ☒ TP ☐ PBR ☐ CalARP ☐ SPCC ☐ SWPPP ☒ IW ☒ RECYCLER ☐  
Inspection Type: Routine ☒ Other ☐ HWG Status: LQG ☐ SQG ☒ CA ONLY ☐ RECYCLER ☐ CESQG Silver ☐ SPG ☐ Number of Employees: 20  
Inspection Category: Single Program ☒ Combined ☐ Joint ☐ Integrated/Multi-Media ☒ NOV Issued ☐



# CITY OF SANTA FE SPRINGS FIRE DEPARTMENT

Fire Protection Division Environmental Protection Division

11300 Greenstone Avenue • Santa Fe Springs, CA 90670-4619 • (562) 944-9713 • FAX (562) 941-1817 • fire@santafesprings.org

## NOTICE OF VIOLATION & ORDER TO COMPLY

Business Name: Air Guide Contact: Toby Erickson  
Site Address: 8832 Rice Unit # \_\_\_\_\_ Telephone: 945-1383  
Business Owner: \_\_\_\_\_ Inspected by: Richard Kallman

☒ FIRST NOTICE 11-2-00 ☒ SECOND NOTICE 3-27-01 ☐ THIRD NOTICE \_\_\_\_\_  
DATE DATE DATE

Compliance Due Date 12-2-00 Compliance Due Date April 10, 2001 Compliance Due Date \_\_\_\_\_  
Ext 12-15-00 RD

CORRECT THE BELOW STATED VIOLATIONS, SIGN AND RETURN FORM TO AVOID LATE FINES

22 ← INT.

1st Notice NO CHARGE  
2nd Notice ~~\$50~~ 100  
3rd Notice \$100 Fine  
Office Meeting \$500 Fine

ITEM	DESCRIPTION OF VIOLATIONS:
1.	Update chemical inventory/contingency plan (HSC 6.95)
2.	Provide copy of calibration requirements and last calibration for gas sensors (WFC 79/80)
	No Waste Violations Found
3	UST Forms (CCR) - UST Facility - Tank Page 1 & 2
	Forms enclosed Not Required
4	Repair of pump in sump per inspection on 11/2/00 (CCR)
5	Provide copy of repairs including monitor certification
	DICE 01591
6	Pay CUPA fees of \$7,906 - copy of invoice attached * Also late fee - \$100 due

The above conditions or practices represent a violation of the referenced code for which there are civil and or criminal penalties. Failure to correct the above violations by the specified due date may result in legal action being taken against the above parties. The giving of this notice and recent inspection of your facility is not a representation by the City of Santa Fe Springs that no other violations exist on your premises. After you have corrected the violation, please sign and print your name along with the date and return this notice with any required documentation to the Santa Fe Springs Fire Department at the above address.

I HEREBY CERTIFY THAT THE ABOVE SPECIFIED VIOLATIONS HAVE BEEN CORRECTED.

Signature of Responsible Party

Name - Printed

Date

# Triangle Environmental, Inc.

2525 West Burbank Blvd., Burbank, CA 91505-2302

(818) 840-7020 Fax: (818) 840-6929

## T.E.I. UST TESTING SYSTEMS SUMMARY SHEET

### Precision Underground Storage Tank System Leak Test

**Client:**

Air Liquide America Corporation

8832 Dice Rd.

Santa Fe Springs, CA 90670

**Work #: 511441****Test Date: 11/ 2/00****Facility:**

Air Liquide America Corporation

8832 Dice Rd.

SANTA FE SPRINGS, CA 90670

**County: Los Angeles****Cross Street: Slauson and Los Nientos**

Tank#	Product	Capacity	Test System Type	Tank Rate/Results	Ullage Result	Line Rate/Result	L/D Result
-------	---------	----------	------------------	----------------------	---------------	---------------------	------------

**Certified By:****Technician: Stephen Graham****State Lic. #s:****Mfr's #: TEI-055****Comments:**

Monitor certification

This precision tank testing system exceeds the criteria required by Local, State and Federal NFPA #329 and EPA UST Technical Standards Part 280 for precision testing systems.

# Triangle Environmental, Inc.

2525 West Burbank Blvd., Burbank, CA 91505-2302

(818) 840-7020 Fax: (818) 840-6929

## T.E.I. UST MONITOR CERTIFICATION SUMMARY SHEET

**Client:**

Air Liquide America Corporation

8832 Dice Rd.

Santa Fe Springs, CA 90670

**Work #: 511441****Test Date: 11/ 2/00****Facility:**

Air Liquide America Corporation

8832 Dice Rd.

SANTE FE SPRINGS, CA 90670

**County: Los Angeles****Cross Street: Slauson and Los Nietos****Monitor model: MSA TANKGARD 4 CHANN****Serial #: 1965**

Sensor Type:	Quantity:	Result:		
Tank Annular :	1	PASS	Annular Type:	DRY
Waste Oil Annular :	0	N/A	Audible Alarm?	Yes
Waste Oil Sump:	0	N/A	Visual Alarm?	Yes
Vadose Wells :	0	N/A	Fail Safe?	Yes
Line Pressure :	0	N/A	Positive Shut-off?	Yes
Turbine Sump :	1	PASS	Gauge Only Result:	N
Line Trench :	0	N/A	ATG Monthly Test?	No
Fill Sump :	0	N/A	ATG CSLD?	No

**Comments:**

This certifies that the monitor and sensors, as listed above, are operational and calibrated per the manufacturer's specification.

**Inspected By:**

Stephen Graham



DICE 01593

# MONITORING SYSTEM CERTIFICATION

For Use By All Jurisdictions Within the State of California

Authority Cited: Chapter 6.7, Health and Safety Code; Chapter 16, Division 3, Title 23, California Code of Regulations

This form must be used to document testing and servicing of monitoring equipment. If more than one monitoring system control panel is installed at the facility, a separate certification or report must be prepared for each monitoring system control panel by the technician who performs the work. A copy of this form must be provided to the tank system owner/operator. The owner/operator must submit a copy of this form to the local agency regulating UST systems within 30 days of test date. Instructions are printed on the back of this page.

## A. General Information

Facility Name: Air Guide Bldg. No.: \_\_\_\_\_

Site Address: 8832 Dick Rd City: Santa Fe Springs, CA Zip: \_\_\_\_\_

Facility Contact Person: \_\_\_\_\_ Contact Phone No.: (\_\_\_\_) \_\_\_\_\_

Make/Model of Monitoring System: MSA Tank Guard TV Date of Testing/Servicing: 11/2/00  
5M 1965

## B. Inventory of Equipment Tested/Certified

Check the appropriate boxes to indicate specific equipment inspected/serviced:

Tank ID: <u>ACE ONE</u>	Tank ID: _____
<input type="checkbox"/> In-Tank Gauging Probe. Model: _____	<input type="checkbox"/> In-Tank Gauging Probe. Model: _____
<input checked="" type="checkbox"/> Annular Space or Vault Sensor. Model: <u>Cipit Sensor</u>	<input type="checkbox"/> Annular Space or Vault Sensor. Model: _____
<input checked="" type="checkbox"/> Piping Sump / Trench Sensor(s). Model: <u>Vapor Sensor</u>	<input type="checkbox"/> Piping Sump / Trench Sensor(s). Model: _____
<input type="checkbox"/> Fill Sump Sensor(s). Model: _____	<input type="checkbox"/> Fill Sump Sensor(s). Model: _____
<input type="checkbox"/> Mechanical Line Leak Detector. Model: _____	<input type="checkbox"/> Mechanical Line Leak Detector. Model: _____
<input type="checkbox"/> Electronic Line Leak Detector. Model: _____	<input type="checkbox"/> Electronic Line Leak Detector. Model: _____
<input type="checkbox"/> Tank Overfill / High-Level Sensor. Model: _____	<input type="checkbox"/> Tank Overfill / High-Level Sensor. Model: _____
<input type="checkbox"/> Dispenser Containment Sensor(s). Model: _____	<input type="checkbox"/> Dispenser Containment Sensor(s). Model: _____
<input type="checkbox"/> Shear Valve(s).	<input type="checkbox"/> Shear Valve(s).
<input type="checkbox"/> Dispenser Containment Float(s) and Chain(s).	<input type="checkbox"/> Dispenser Containment Float(s) and Chain(s).
<input type="checkbox"/> Other (specify equipment type and model in Section E on Page 2).	<input type="checkbox"/> Other (specify equipment type and model in Section E on Page 2).
Tank ID: _____	Tank ID: _____
<input type="checkbox"/> In-Tank Gauging Probe. Model: _____	<input type="checkbox"/> In-Tank Gauging Probe. Model: _____
<input type="checkbox"/> Annular Space or Vault Sensor. Model: _____	<input type="checkbox"/> Annular Space or Vault Sensor. Model: _____
<input type="checkbox"/> Piping Sump / Trench Sensor(s). Model: _____	<input type="checkbox"/> Piping Sump / Trench Sensor(s). Model: _____
<input type="checkbox"/> Fill Sump Sensor(s). Model: _____	<input type="checkbox"/> Fill Sump Sensor(s). Model: _____
<input type="checkbox"/> Mechanical Line Leak Detector. Model: _____	<input type="checkbox"/> Mechanical Line Leak Detector. Model: _____
<input type="checkbox"/> Electronic Line Leak Detector. Model: _____	<input type="checkbox"/> Electronic Line Leak Detector. Model: _____
<input type="checkbox"/> Tank Overfill / High-Level Sensor. Model: _____	<input type="checkbox"/> Tank Overfill / High-Level Sensor. Model: _____
<input type="checkbox"/> Dispenser Containment Sensor(s). Model: _____	<input type="checkbox"/> Dispenser Containment Sensor(s). Model: _____
<input type="checkbox"/> Shear Valve(s).	<input type="checkbox"/> Shear Valve(s).
<input type="checkbox"/> Dispenser Containment Float(s) and Chain(s).	<input type="checkbox"/> Dispenser Containment Float(s) and Chain(s).
<input type="checkbox"/> Other (specify equipment type and model in Section E on Page 2).	<input type="checkbox"/> Other (specify equipment type and model in Section E on Page 2).

C. Certification - I certify that the equipment identified in this document was inspected/serviced in accordance with the manufacturers' guidelines. Attached to this Certification is information (e.g. manufacturers' checklists) necessary to verify that this information is correct and a Site Plan showing the layout of monitoring equipment. For any equipment capable of generating such reports, I have also attached a copy of the (check all that apply):

- ☐ System set-up report;  
☐ Alarm history report.

Technician Name (print): S. GRIMAL Cert/Lic. No.: 60771722 Signature: [Signature]

Testing Company Name: TRI Phone No.: (818) 840-7020

## Monitoring System Certification

Site Address: 8832. 7128 E.N. South E. Spineer CA Date of Testing/Service: 11/2/00

## D. Results of Testing/Service.

Software Version Installed: N/A

Complete the following checklist:

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	Is the audible alarm operational?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	Is the visual alarm operational?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all sensors visually inspected, functionally tested, and confirmed operational?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all sensors installed at lowest point of secondary containment and positioned so that other equipment will not interfere with their proper operation?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	If alarms are relayed to a remote monitoring station, is all communications equipment (e.g. modem) operational?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	For pressurized piping systems, does the turbine automatically shut down if the piping secondary containment monitoring system detects a leak, fails to operate, or is electrically disconnected? If yes: which sensors initiate positive shut-down? (Check all that apply) <input checked="" type="checkbox"/> Sump/Trench Sensors; <input type="checkbox"/> Dispenser Containment Sensors. Did you confirm positive shut-down due to leaks and sensor failure/disconnection? <input checked="" type="checkbox"/> Yes; <input type="checkbox"/> No.
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	For tank systems that utilize the monitoring system as the primary tank overflow warning device (i.e. no mechanical overflow prevention valve is installed), is the overflow warning alarm visible and audible at the tank fill point(s) and operating properly? If so, at what percent of tank capacity does the alarm trigger? _____ %
<input type="checkbox"/> Yes*	<input checked="" type="checkbox"/> No	Was any monitoring equipment replaced? If yes, identify specific sensors, probes, or other equipment replaced and list the manufacturer name and model for all replacement parts in Section E, below.
<input type="checkbox"/> Yes*	<input checked="" type="checkbox"/> No	Was liquid found inside any secondary containment systems designed as dry systems? (Check all that apply) <input type="checkbox"/> Product; <input type="checkbox"/> Water. If yes, describe causes in Section E, below.
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	Was monitoring system set-up reviewed to ensure proper settings?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	Is all monitoring equipment operational per manufacturer's specifications?

\* In Section E below, describe how and when these deficiencies were or will be corrected.

## E. Comments:

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## Monitoring System Certification

Site Address: 2832 DICE RD Santa G Spine CA Date of Testing/Service: 11/1/00

## F. In-Tank Gauging / SIR Equipment:

- ☐ Check this box if tank gauging is used only for inventory control.  
☒ Check this box if no tank gauging or SIR equipment is installed.

This section must be completed if in-tank gauging equipment is used to perform leak detection monitoring.

## Complete the following checklist:

<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Has all input wiring been inspected for proper entry and termination, including testing for ground faults?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all tank gauging probes visually inspected for damage and residue buildup?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Was accuracy of system product level readings tested?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Was accuracy of system water level readings tested?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all probes reinstalled properly?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all items on the equipment manufacturer's maintenance checklist completed?

\* In the Section H, below, describe how and when these deficiencies were or will be corrected.

## G. Line Leak Detectors (LLD):

- ☒ Check this box if LLDs are not installed.

## Complete the following checklist:

<input type="checkbox"/> Yes	<input type="checkbox"/> No* <input type="checkbox"/> N/A	For equipment start-up or annual equipment certification, was a leak simulated to verify LLD performance? (Check all that apply) Simulated leak rate: <input type="checkbox"/> 3 g.p.h. <sup>2</sup> ; <input type="checkbox"/> 0.1 g.p.h. <sup>2</sup> ; <input type="checkbox"/> 0.2 g.p.h. <sup>2</sup> Notes: 1. Required for equipment start-up certification and annual certification. 2. Unless mandated by local agency, certification required only for electronic LLD start-up.
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all LLDs confirmed operational and accurate within regulatory requirements?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Was the testing apparatus properly calibrated?
<input type="checkbox"/> Yes	<input type="checkbox"/> No* <input type="checkbox"/> N/A	For mechanical LLDs, does the LLD restrict product flow if it detects a leak?
<input type="checkbox"/> Yes	<input type="checkbox"/> No* <input type="checkbox"/> N/A	For electronic LLDs, does the turbine automatically shut off if the LLD detects a leak?
<input type="checkbox"/> Yes	<input type="checkbox"/> No* <input type="checkbox"/> N/A	For electronic LLDs, does the turbine automatically shut off if any portion of the monitoring system is disabled or disconnected?
<input type="checkbox"/> Yes	<input type="checkbox"/> No* <input type="checkbox"/> N/A	For electronic LLDs, does the turbine automatically shut off if any portion of the monitoring system malfunctions or fails a test?
<input type="checkbox"/> Yes	<input type="checkbox"/> No* <input type="checkbox"/> N/A	For electronic LLDs, have all accessible wiring connections been visually inspected?
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	Were all items on the equipment manufacturer's maintenance checklist completed?

\* In the Section H, below, describe how and when these deficiencies were or will be corrected.

## H. Comments:

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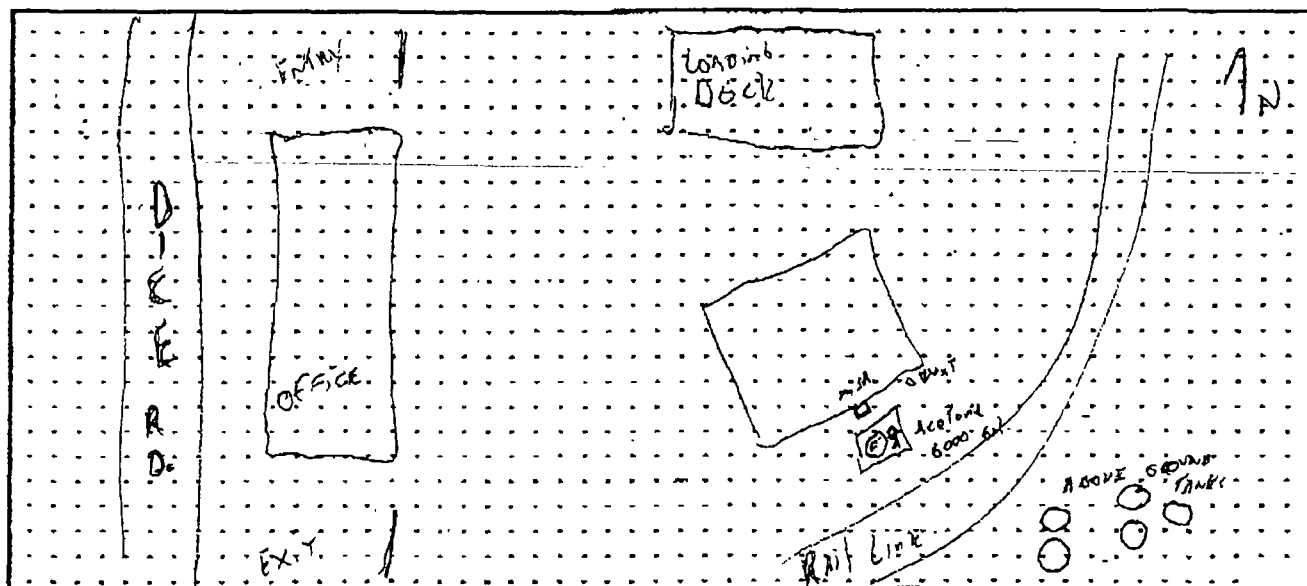


## Monitoring System Certification

## UST Monitoring Site Plan

Site Address:

AIR Circle 887+ DICE RD Santa Fe Springs CA



Date map was drawn: 11/1/00

Instructions

If you already have a diagram that shows all required information, you may include it, rather than this page, with your Monitoring System Certification. On your site plan, show the general layout of tanks and piping. Clearly identify locations of the following equipment, if installed: monitoring system control panels; sensors monitoring tank annular spaces, sumps, dispenser pans, spill containers, or other secondary containment areas; mechanical or electronic line leak detectors; and in-tank liquid level probes (if used for leak detection). In the space provided, note the date this Site Plan was prepared.



# Triangle Environmental, Inc.

2525 West Burbank Blvd., Burbank, CA 91505-2302

(818) 840-7020 Fax: (818) 840-6929

## T.E.I. UST TESTING SYSTEMS SUMMARY SHEET

### Precision Underground Storage Tank System Leak Test

**Client:**

Air Liquide America Corporation

8832 Dice Rd.

Santa Fe Springs, CA 90670

**Work #: 61748****Test Date: 11/ 2/00****Facility:**

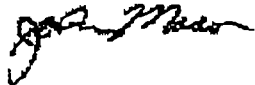
Air Liquide America Corporation

8832 Dice Rd.

SANTE FE SPRINGS, CA 90670

**County: Los Angeles****Cross Street: Slauson and Los Nientos**

Tank#	Product	Capacity	Test System Type	Tank Rate/Results	Ullage Result	Line Rate/Result	L/D Result
1	Acetone	6000	System 5000	FAIL	FAIL	N/A	N/A

**Certified By:****Technician: John Mason****Mfgr's #: TEI-042****State Lic. #: CA-1073****Comments:**

Failed tank test.

This precision tank testing system exceeds the criteria required by Local, State and Federal NFPA #329 and EPA UST Technical Standards Part 280 for precision testing systems.

1

DICE 01599

# Triangle Environmental, Inc.

## T.E.I. SYSTEMS TANK, LINE AND LEAK DETECTOR TEST REPORT

Facility: Air Liquide America Corporation

Tank #: 1

Work #: 61748

Product: Acetone

Test Date: 11/ 2/00

TANK TEST RESULTS	
Test Method:	System 5000
Capacity:	6000
Diameter (in):	96
Product Level (in):	54
Liquid Volume (Gals):	3486
Liquid Percent (%):	58.1%
Specific Gravity:	0.700
Coef. of Expansion:	
Water On Tank (in):	0
Water In Tank (in):	0
Product Temp. (F):	
Head Pressure (psi):	1.4
Test Start Time:	3:00 PM
Test End Time:	3:30 PM
Test Rate (gph):	
Test Result:	FAIL

TANK TEST RESULTS	
Test Method:	ULLAGE
Ullage Volume (gals.):	2514
Ullage Test Time:	3:00 PM
Ullage Vacuum (psi):	1.9
Ullage Result:	FAIL

LINE TEST RESULTS	
Test Method:	R.J. FTA
Manufacturer:	
L/D Model:	
L/D Serial #:	
Line Drain Back (ml):	
L/D Trip Time (sec):	
Holding Pressure (psi):	
Metering Pressure (psi):	
L/D Test Rate (gph):	
L/D Result:	N/A

LINE TEST RESULTS	
Test Method:	
Pump Brand:	
System Type:	
Line Pressure (psi):	
Line Start Time:	
Line End Time:	
Line Start Level:	
Line End Level:	
Line Test Rate (gph):	
Line Test Result:	N/A

TANK TEST RESULTS	
Ullage failure	



# CALIFORNIA CALIBRATIONS COMPANY

## Certificate of Instrument Calibration

Issued to: **AIR LIQUIDE**

Reference: Model: ISA-44-4

Serial#: 644

WO#: 279265

To Whom It May Concern:

This is to certify, that the above referenced instrument was calibrated by California Calibrations Company as a part of your Service Request.

The Calibration was performed as prescribed by ENMET Corporation, per the Service Manual for the unit.

Alarm Set-Points are as follows:

SO<sub>2</sub> 2/5 ppm

Methane 10/20% LEL

NO 50/100ppm

CO 35ppm

O<sub>2</sub> 19.5% by Volume

Next Recommended Calibration is: 3-8-2001

I do trust that the above information is sufficient for your purpose.

Sincerely,

California Calibrations Repair Department

9 DEWBERRY • RANCHO SANTA MARGARITA, CA • 92688  
PHONE/FAX: 949-858-8184 • PAGER: 949-767-1772

DICE 01601



## Certificate of Instrument Calibration

Issued to: **AIR LIQUIDE**

Reference:            Model:    ISA-44-8

Serial#:            962

WO#:                279265

To Whom It May Concern:

This is to certify, that the above referenced instrument was calibrated by California Calibrations Company as a part of your Service Request.

The Calibration was performed as prescribed by ENMET Corporation, per the Service Manual for the unit.

Alarm Set-Points are as follows:

LEL METHANE 5/10% LEL

BUTANE 10/20% LEL

METH CHLORIDE 100/200ppm

HYDROGEN 10/20ppm

CO/H2S 35/100 ppm

NO 25/50ppm

S02 2/5 ppm

OXYGEN 19.5% BY VOLUME

Next Recommended Calibration is:    3-8-2001

I do trust that the above information is sufficient for your purpose.

Sincerely,

California Calibrations Repair Department



June 7, 2001

Richard Kallman  
Raul Diaz  
City of Sante Fe Springs  
11300 Greenstone Ave  
Santa Fe Springs, CA 90670

Dear Sirs:

This letter is to serve as the update for the primary and secondary contacts for the Air Liquide facility located at 8832 Dice Road.

Primary and Environmental Contact:

Aaron Tesch

Business: 562-464-5242

FOIA ex 6, Personal  
Privacy

Secondary Contact

Bill Cardoza

Business: 916-771-0344

FOIA ex 6, Personal Privacy

Sincerely,

Toby Erickson  
Former Plant Manager  
Director Medical Gas Operations

DICE 01603

AIR LIQUIDE AMERICA CORPORATION

Region Office • 8832 Dice Road, Santa Fe Springs, CA 90670-2516  
Phone: (562) 945-1383 • Fax: (562) 693-1156



**UNIFIED PROGRAM CONSOLIDATED  
BUSINESS OWNER/OPERATOR**

☐ NEW BUSINESS ☐ OUT OF BUSINESS ☐ REVISE/UPDATE (EFFECTIVE / / )

**I. IDENTIFICATION**

FACILITY ID# (Fire Dept use only) 1 9 0 4 9  
 BUSINESS NAME AIR LIQUIDE AMERICA CORPORATION  
 BUSINESS SITE ADDRESS 8832 DICE ROAD  
 CITY - SANTA FE SPRINGS  
 DUN & BRADSTREET 05-981-9680  
 COUNTY LOS ANGELES  
 BUSINESS OPERATOR NAME

**II. BUSINESS OWNER**

OWNER NAME AIR LIQUIDE AMERICA CORPORATION 111 OWNER PHONE [713] 624-8000 112  
 OWNER MAILING ADDRESS 2700 POST OAK BLVD 113  
 CITY HOUSTON 114 STATE TX 115 ZIP CODE 77056 116

**III. ENVIRONMENTAL CONTACT**

CONTACT NAME AARON L. TESCH 117 CONTACT PHONE [562] 464-5242 118  
 CONTACT MAILING ADDRESS 8832 DICE ROAD 119  
 CITY SANTA FE SPRINGS 120 STATE CA. 121 ZIP CODE: 90670 122

**-PRIMARY-**

**IV. EMERGENCY CONTACTS**

**-SECONDARY-**

NAME AARON L. TESCH 123	NAME: LINDOLPHO CLEMENTE 128
TITLE PLANT / FACILITY MANAGER 124	TITLE FILL PLANT SHIFT LEAD 129
BUSINESS PHONE [562] 464-5242 125	BUSINESS PHONE [562] 577-2902 MOBILE 130

FOIA ex 6, Personal Privacy

FOIA ex 6, Personal Privacy

**V. ADDITIONAL LOCALLY COLLECTED INFORMATION**

DESCRIPTION OF BUSINESS INDUSTRIAL GAS, CYLINDER FILL FACILITY 133b

**MAILING/ BILLING INFORMATION**

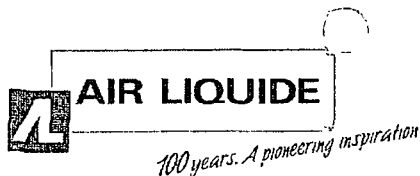
ADDRESS 8832 DICE ROAD 133d CITY SANTA FE SPRINGS 133e ST CA 133f ZIP 90670 133g

**Certification** Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE <i>Aaron L. Tesch</i>	DATE 11/14/01 134	NAME OF DOCUMENT PREPARER AARON L. TESCH 135
NAME OF SIGNER (print) AARON L. TESCH 136	TITLE OF SIGNER PLANT / FACILITY MANAGER 137	

OFFICIAL USE ONLY	UP Form	HW	HM	ARP	AST	UST	TP	CUPA	PA
INSPECTOR	DISTRICT	DATE OF INSP	DIVISION	BATTALION	STATION				





Air Liquide America Corporation  
12800 West Little York  
Houston, TX 77041

## Fax Cover

Date:	2/11/02	Pages:	3
To:	Aaron Tesch & Josh M.	From:	Kelly Davidson
Company:	ALAC - SFS	Company:	ALAC - HSE
Fax:	562-693-1156	Fax:	713-896-2879
Phone:	562-464-5242	Phone:	713-896-2887
Re:	Application & permit for UST removal		

☐ Urgent    ☐ For Review    ☐ Please Comment    ☐ As requested

### Comments:

Aaron,

These copies will need to accompany response to the state. The permit did not fax well from Petro, so you may not even be able to read it on the second fax. But it is from the Fire Department for the removal of a UST.

Thanks,

Kelly

PROPERTY OF AIR LIQUIDE AMERICA CORPORATION. The information in this facsimile message is intended only for the use of the individual or entity named above and may be confidential. Any unauthorized dissemination, distribution, or duplication of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

DICE 01605

Feb. 11. 2002 11:41AM

PETRO BUILDERS

No. 0227 P. 1

City of Santa Fe Springs Fire Department • Certified Underground Program Agency

11300 Greenstone Avenue

Santa Fe Springs, CA 90670

Phone (562) 944-9713 • Fax (562) 941-1817

## APPLICATION FOR STORAGE TANK CLOSURE

☐ ABOVEGROUND ☒ UNDERGROUNDFACILITY NAME: AIR LIQUIDE AMERICA CORP.LOCATION: 8832 DICERD. S.F.S.

## RESPONSIBLE PARTY INFORMATION:

Name AARON L. TESCH / AIR LIQUIDEMailing Address 8832 DICERD City SFS State CA Zip 90670Contact Person AARON L. TESCH Phone 562-464-5242☒ CONTRACTOR OR ☐ OWNER/OPERATOR AS CONTRACTOR Please indicate by checking appropriate box. A list of all subcontractors must be provided. List must include subcontractor name, address, phone number, scope of work, and a copy of the contractor's license.Name PETRO BUILDERS INC. State License Number \_\_\_\_\_Address 16609 PAINTER AVE City SFS State CA Zip 90670Contact Person JOANNA SHULTZ Phone 562-9462285

CLOSURE REQUESTED: All closures under this application must meet the requirements and conditions listed below.

☒ Permanent, tank removal, non-hazardous (see condition A attached)☐ Permanent, tank removal, hazardous (see condition B attached)☐ Permanent, closure in place (see condition C attached)☐ Temporary (see condition D attached)☐ Monitoring well abandonment (see Condition E attached)DATE TANK SYSTEM WILL BE CLEANED AND/OR EXCAVATED, OR CLOSED: 2/14/02 INTENDED DISPOSITION OF TANK DEMOLITIONINTENDED DESTINATION OF TANK SYSTEM (location name and address): 2728 LONG BEACH AVE. L.A. METAL INC.

## COMPLETE THE FOLLOWING:

					TO BE COMPLETED BY FIRE DEPT.		
TANK ID NUMBER (use state tank ID# for underground tanks)	TANK MATERIAL	AGE IN YEARS	CAPACITY	LAST MATERIAL STORED/PAST MATERIAL STORED PER CGAR67383.3(12)	DATE CLOSED	INSPECTION INITIALS	COMMENTS
19049600094000001	STEEL w/ clad FRP	13 yrs.	6000	ACETONE			

Has an unauthorized release ever occurred at this site?

YES

☐

Have structural repairs ever been made to these tanks?

☐

Will new tanks be installed after this closure?

☐

How many tanks will remain after this closure?

ASTs \_\_\_\_\_

USTs \_\_\_\_\_

NO

☒☒☒

DICE 01606

By signature below the applicant certifies that they have read, understand, and agree to abide by the Storage Tank Closure Requirements and Conditions, the Notification/Permit Requirements and Contractor's Declaration, the Notice to Closure Permit Applicants, and all other conditions and limitations attached. Additional guidelines are available upon request. By signature below you declare you are authorized to certify on behalf of the tank operator that the identity of the last material or waste stored or accumulated in the tank is true and correct.

Applicant's Signature Ralph BarajasDate 1-23-02Print Name RALPH BARAJASPhone 562-9462285Title (please check): ☐ Owner ☐ Operator ☒ Contractor

## TO BE COMPLETED BY THE SANTA FE SPRINGS FIRE DEPARTMENT

PERMISSION IS HEREBY GRANTED TO PROCEED WITH THE CLOSURE DESCRIBED ABOVE SUBJECT TO THE ATTACHED CONDITIONS AND LIMITATIONS. THIS PERMIT EXPIRES 180 DAYS FROM THE DATE BELOW.

Ncal Welland

\* Inspector [Signature]Date Approved 1/25/02

**City of Santa Fe Springs Fire Department**  
 11300 GREENSTONE AVE. SANTA FE SPRINGS, CA 90670  
 (562) 944-9713 • FAX (562) 941-8117

## POST ON JOB SITE

Name of Facility	AIR LIQUIDE AMERICA CORP	Description of work	
Project Address	8832 DICE RD. S.F.S.		
Project/Contact	MARCO L. TESCH	Telephone	(562) 944-5242
Architect/Engineer		Telephone	
Address			

### CONTRACTOR INFORMATION (if applicable)

Contractor	PETRO BUILDERS INC	Telephone	(562) 944-2286
Address	10604 PAINTER AVE. S.F.S.		
License Class		License Number	
		Expiration Date	5/01/07

## FIRE INSPECTION

**NOTE: DO NOT OCCUPY BUILDING ROOMS, ACTIVATE SYSTEMS OR EQUIPMENT UNTIL FINAL INSPECTIONS HAVE BEEN MADE.**  
 NOTIFY THE SANTA FE SPRINGS FIRE DEPARTMENT (562) 944-9713 AT LEAST 24 HOURS BEFORE THE JOB IS READY FOR INSPECTION. WHEN CALLING PLEASE GIVE THE OWNER'S NAME, JOB ADDRESS AND TYPE OF INSPECTION REQUIRED. IF INSPECTION IS NOT READY UPON FIRE INSPECTOR'S ARRIVAL, YOU MAY BE CHARGED A REINSPECTION FEE.

FIRE PROTECTION DIVISION	DATE	INSPECTOR	FIRE PROTECTION DIVISION	DATE	INSPECTOR
Fire Alarm System			Oil Well Abandonment		
Locations			50 Foot Top Pile		
Installation			Welded Pipe		
Test			Soil Venting Systems		
Final			Excavations		
Automatic Sprinkler System			Aggregate Base and Paving		
U/G Hydro			Benching		
U/G Plumb			Gas Detection System		
U/G Hydro			High Piled Combustible Stock		
Final			Stack Exhaust Curians/Hose Rack/Smoke Vent		
Compressed Gas System Test			Dry/Wet Chemical Extinguishing System		
IFC Tank					
Paint Spray Booth/Electrostatic			ENVIRONMENTAL PROTECTION		
Dip Tank			BUREAU	DATE	INSPECTOR
Dust Collection System			Asbestos Removal		
Standpipe W/Def			High Occupancy		
On Site Fire Hydrant System			Emergency Alarm System		
U/G Hydro			UST & AST		
Final			(Installation/Removal/Modifications)		
New Construction Final			Number of Tanks		
Drying Ovens (Industrial Baking/drying)					
Tent & Air Supported Structure					
Flow/Powder Chuting Equipment					
Tenant Improvement (Structure)					
Tenant Improvement (Auto Sprinkler)					
Rough					
Final					
Remarks					

DICE 01607

CONCEPTUAL CLOSURE PLAN

LIQUID AIR CORPORATION  
8832 DICE ROAD  
SANTA FE SPRINGS, CALIFORNIA 90670

4 SEPTEMBER 1992

K/J 924004.00

**Kennedy/Jenks Consultants**

DICE 01608

CONCEPTUAL CLOSURE PLAN

LIQUID AIR CORPORATION  
8832 DICE ROAD  
SANTA FE SPRINGS, CALIFORNIA 90670

4 SEPTEMBER 1992

K/J 924004.00

# Kennedy/Jenks Consultants

Engineers and Scientists

17310 Red Hill Avenue Suite 220  
Irvine California 92714  
714 261-1577  
FAX 714-261-2134

4 September 1992

Mr. Robert Predmore  
Director of Engineering  
Liquid Air Corporation  
2121 North California Blvd.  
Walnut Creek, California 94596

Subject: Conceptual Closure Plan of  
Lime Pits at Liquid Air Facility,  
Santa Fe Springs, California

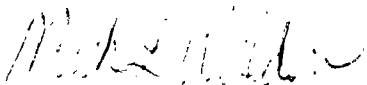
Dear Mr. Predmore:

We are pleased to submit this Conceptual Closure Plan for the two lime pits located at the Liquid Air Facility in Santa Fe Springs, California. This plan incorporates revisions requested in Mr. David N. Simon's letter dated 14 August 1992.

Please call if you have any questions or require additional information.

Very truly yours,

KENNEDY/JENKS CONSULTANTS



Mark L. Walden  
Project Geologist



Bruce Thomas  
Project Manager

MLW:WRB/ca

Attachment

DICE 01610

CONCEPTUAL CLOSURE PLAN

## TABLE OF CONTENTS

<u>Chapter</u>	<u>Title</u>	<u>Page</u>
1.0	INTRODUCTION	1
	1.1 Background	1
2.0	GEOLOGY	1
3.0	PREVIOUS INVESTIGATIONS	1
4.0	CONCEPTUAL CLOSURE PLAN	4
	4.1 Earthwork	4
	4.2 Drainage	4
5.0	CONCLUSIONS AND RECOMMENDATIONS	4

## APPENDICES

- A Stability Analysis for Open Pit  
8832 Dice Road  
Santa Fe Springs, California  
May 13, 1991  
Triad Geotechnical Consultants, Inc.
- B Waste Classification Form  
Submission for Liquid Air Corporation,  
Santa Fe Springs, California  
June 24, 1987  
Ralph Stone and Company
- C CERCLA Site Inspection  
2 August 1989
- D West Coast Analytical Services  
Laboratory Reports  
31 December 1990  
John L. Hunter & Associates
- E Southern California Laboratory  
Laboratory Reports  
9 September 1991

DICE 01612



LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Following Page</u>
1	Vicinity Map	1
2	Site Map	1

## 1.0 INTRODUCTION

This report presents a Conceptual Closure Plan for two lime pits located at the Liquid Air Facility at 8832 Dice Road, Santa Fe Springs, California (Figure 1). The conceptual closure plan was developed to provide protection to the environment and facilitate proposed post-closure land uses.

### 1.1 Background

The Liquid Air Santa Fe Springs Facility produces acetylene for industrial uses along with repackaging other gases used for industrial and medicinal purposes. These other gases include carbon dioxide, hydrogen, helium, nitrogen, dinitrogen dioxide, oxygen, propane, and fuel gases. As a by-product of the acetylene manufacturing process, a solution of calcium hydroxide ( $\text{Ca}(\text{OH})_2$ ) is generated. This solution has historically been discharged into two unlined pits located at the east end of the facility. The pits measure approximately 100' long, 80' wide, 25' deep; and approximately 250' long, 100' wide, 25' deep (Triad Geotechnical Consultants, 1991; see Figure 2 for approximate locations). The solution is allowed to evaporate in the pits leaving lime on the bottom. The lime is then removed, dried, and sold commercially as a stabilizing agent for road construction.

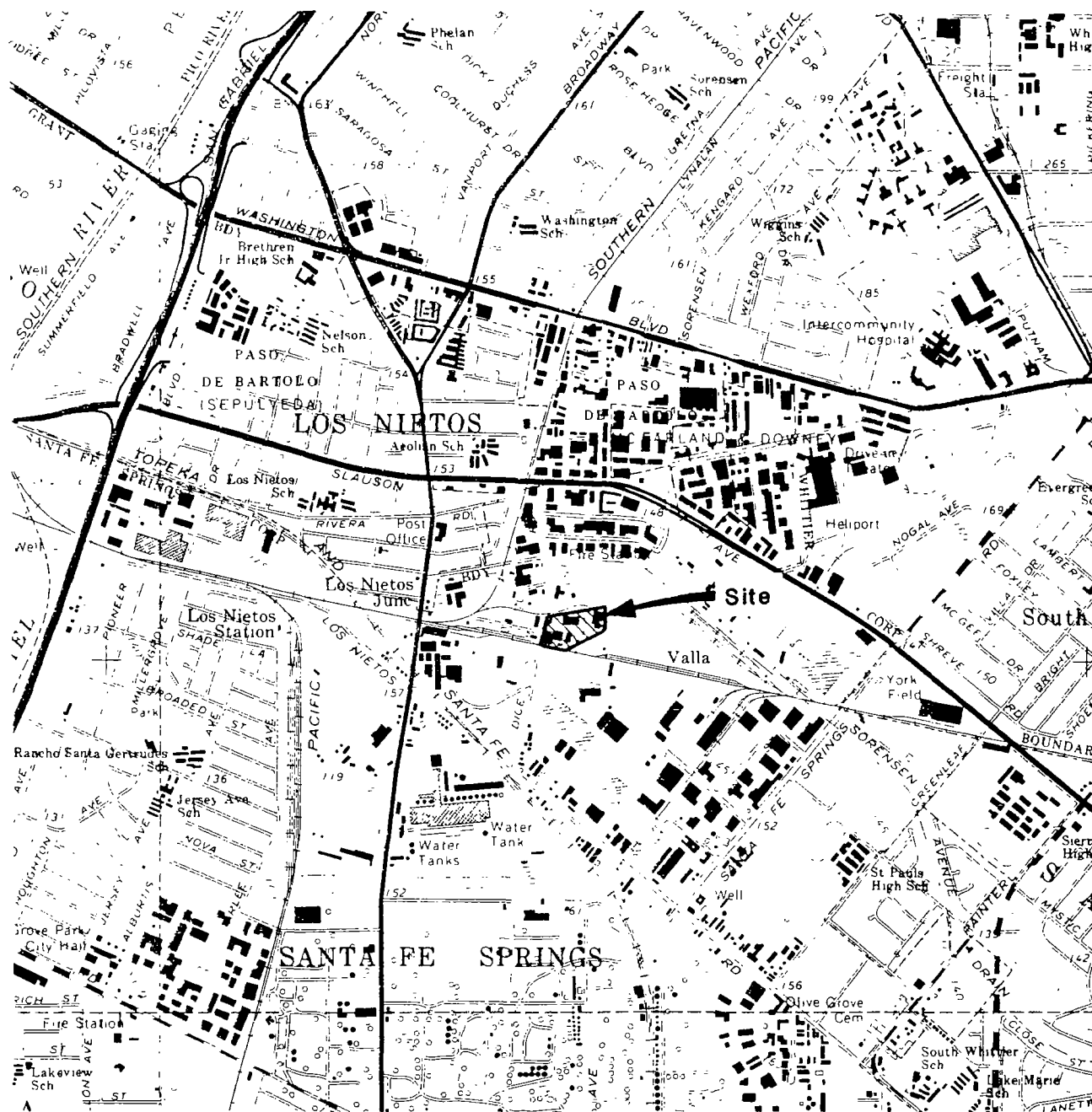
## 2.0 GEOLOGY

A field investigation report of the subsurface soils in and around the immediate vicinity of the two lime pits titled Stability Analysis for Open Pit, 8832 Dice Road, Santa Fe Springs, California, dated 13 May 1991, was prepared by Triad Geotechnical Consultants, Inc. (included herein as Appendix A). The following is a brief summary of the soils encountered and described in the report:

A total of five borings were advanced into the subsurface soils to depths ranging from 11 feet below ground surface (bgs) to 21 feet bgs. The soils encountered were identified as fill material from five to 13 feet in depth. These soils were described as moist, medium dense to dense, silty sands and sands. Native soils were encountered underlying the fill and consisted of silty sands, sandy silts, and clayey silts. These native soils were described as fine, cohesive, slightly moist to moist, slightly porous, and medium dense to dense. No groundwater was encountered in any of the borings during the investigation. Appendix A presents the Triad Geotechnical, Inc. report.

## 3.0 PREVIOUS INVESTIGATIONS

A governmental agency file search was conducted for the development of this Conceptual Closure Plan. During the course of the file reviews, various investigative reports regarding the two lime pits were encountered. One report reviewed was Waste Classification Form Submission for Liquid Air Corporation, Santa Fe Springs, California



SCALE 1:24000

1 MILE



**Kennedy/Jenks Consultants**

Liquid Air Corporation  
Santa Fe Springs, California

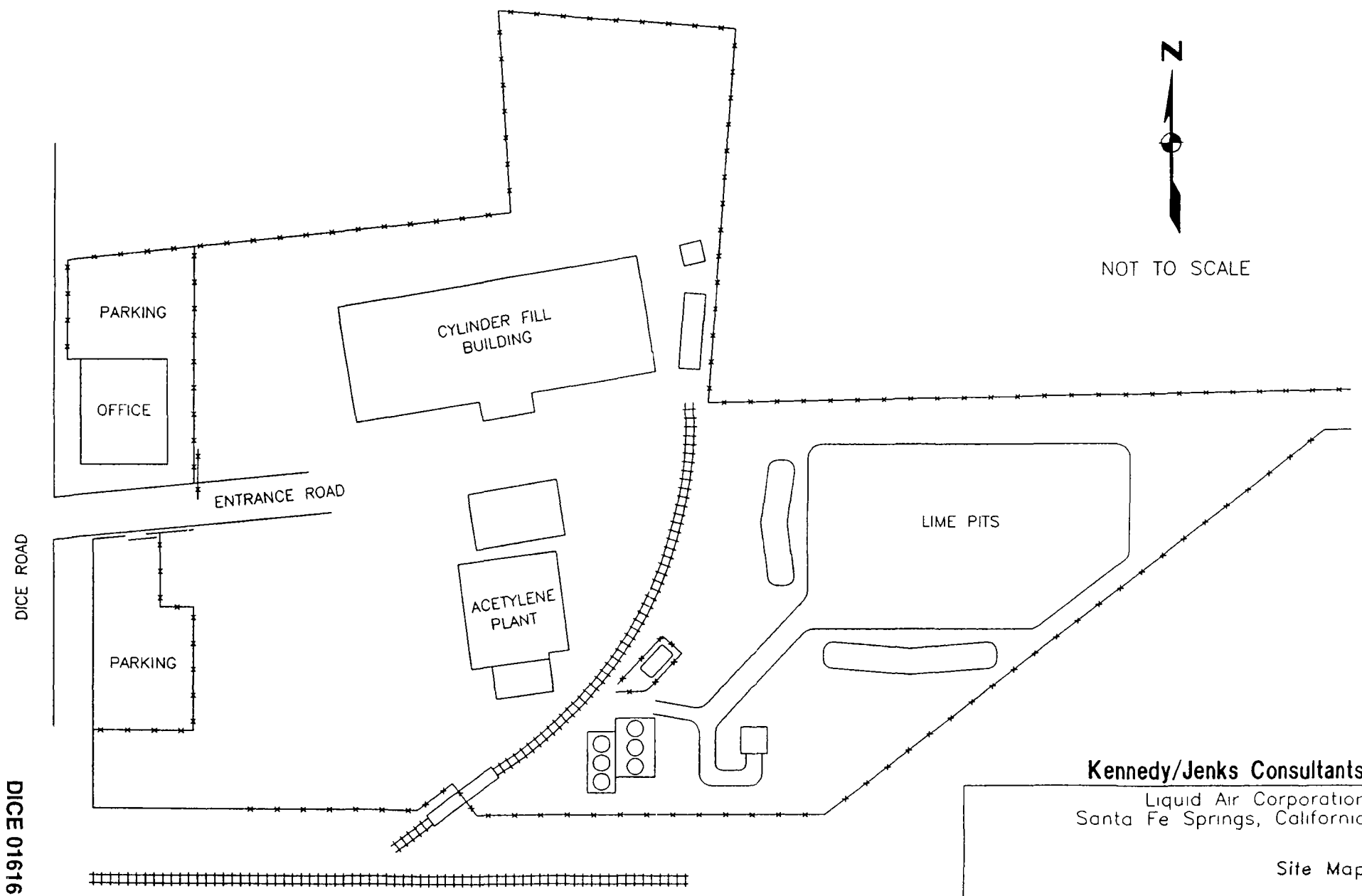
Vicinity Map

June 1992  
K/J 924004.00

Source: USGS Topographic Map,  
Whittier Quadrangle  
7.5 Minute Series  
1965, Photo Revised 1981

**DICE 01615**

**Figure 1**



**Kennedy/Jenks Consultants**  
Liquid Air Corporation  
Santa Fe Springs, California

Site Map

June 1992  
K/J 924004 00

Figure 2

Source. Liquid Air Corporation  
Drawing Number LAA 1018

prepared by Ralph Stone and Company, dated 24 June 1987. This report documents the collection and laboratory analyses of soil samples from the two lime pits to determine whether the pits contained hazardous materials.

The report summarizes the results of chemical analyses of eight soil samples collected from the two pits and compiled into one composite sample for analysis. Each pit reportedly routinely received the same waste solution with no variation in its chemical constituents. The composite sample was chemically analyzed for the following parameters:

- Inorganic Analysis, Metallic (EPA Method 3050)
- Total Cyanide (EPA Method 335.5)
- Cyanide (chlorination) (EPA Method 335.1)
- Fluoride (EPA Method 340.1)
- Sulfide (EPA Method 376.2)
- pH (EPA Method 150.1)

Chemical analyses of the composite sample indicated concentrations substantially below California Code of Regulations Title 22 STLC and TTLC standards, demonstrating that the lime pits are considered non-hazardous in the State of California. No parameter was found to exceed the state standards. Appendix B contains the Ralph Stone and Company report.

The United States Environmental Protection Agency (EPA) conducted a CERCLA Site Inspection at the Liquid Air Facility on February 17, 1989. The report dated June 1989 reviewed and analyzed hydrogeologic conditions and chemical analyses of soil and water samples from the Ralph Stone and Company report. The objective of this investigation was to determine whether the pits contained hazardous materials and is summarized as follows:

The EPA report stated that a previous hydrogeologic assessment was conducted in the vicinity of the site. The site is reported to be located on a surface exposure of the Bellflower Aquiclude. Soils with low hydraulic conductivity ( $10^{-6}$  to  $10^{-7}$  cm/sec and less) were reported approximately 10 and 25 feet bgs in the vicinity of the site. The assessment also indicated that a confined aquifer exists beneath the site from 42 to 45 feet (bgs).

Waste management practices of the facility were also reviewed. Approximately 55 gallons of spent sulfuric acid, 55 gallons of TCE, 200 to 400 gallons of spent motor oil, and 1104 tons of dry lime were estimated to be generated by the Liquid Air facility per year. The spent sulfuric acid, TCE and motor oil are no longer generated at this facility. There is no documented evidence supporting a release of hazardous chemicals to groundwater, surface water, or air. It was determined by the State

DICE 01617

Department of Health Services (DHS) that the lime pits at the site are non-hazardous and because of the lack of documented on-site hazardous waste, the EPA recommended no further action under CERCLA. Appendix C presents the EPA report.

In response to a request by the Los Angeles County Department of Health Services, chemical analyses of three soil samples and one water sample, collected from the lime pits by John L. Hunter & Associates on December 18, 1990, were performed by West Coast Analytical Services. The samples were analyzed for the following:

- |   |   |   |
|---|---|---|
| ● | Two soil samples and one water sample   | Alkalinity (Method SM 403)                            |
| ● | Two soil samples and one water sample   | pH (EPA Method 150.1/9040)                            |
| ● | One soil sample and one water sample    | Volatile Organics<br>(EPA Method 8260/624)            |
| ● | One soil sample and one water sample    | Surrogate Percent Recoveries<br>(EPA Method 8260/624) |
| ● | Three soil samples and one water sample | C.A.M. (17) Metals                                    |

The chemical analyses of the samples indicated metal concentrations substantially below Title 22 STLC and TTLC standards. Volatile organic compounds (VOC) were also reported below state standards. Chemical analyses of pH in two soil samples and one water sample were reportedly 12.7, 12.8, and 12.9, respectively. However, it was later determined by West Coast Analytical Services and Liquid Air, that these pH test results and the other abovementioned tests done by West Coast, were invalid and could not be relied upon. Refer to Appendix D for the West Coast Analytical Services Laboratory reports, their January 10, 1991 letter to Liquid Air, and Liquid Air's February 8, 1991 letter to the City of Santa Fe Springs on this subject.

On August 26, 1991, two samples of the water discharged into the pits and two samples of lime (from outside the pits) were collected by a representative of the State DHS in an attempt to ascertain whether the pits contained hazardous materials. The soil samples were chemically analyzed for the following:

- Metals (EPA Method 6010)
- pH (EPA Methods 9040 and 9045)

The chemical analyses of the samples indicated metal concentrations substantially below Title 22 STLC and TTLC standards. Chemical analyses of pH in the samples were reportedly 12.3, 12.3, 12.4, and 9.4 in two water and two lime samples, respectively. Title 22 defines corrosive material as having a pH value of 12.5 or greater. Appendix E presents these laboratory report.

#### 4.0 CONCEPTUAL CLOSURE PLAN

The two lime pits will be closed in accordance with appropriate state and local agency requirements. The conceptual closure plan is summarized below

- Backfilling the pits with off-site clean compacted imported soil. The fill will be capable of supporting a paved parking and drive area and a two-story structure in the future.
- Constructing a storm drainage system to collect and convey surface drainage into the plant storm drainage system.

Prior to implementation of the Conceptual Closure Plan, construction details will be submitted to state and local agencies under a separate cover. The elements of this conceptual plan are summarized below.

##### 4.1 Earthwork

The lime pits will be filled using clean soil obtained from either: 1) available excavated soil from potential new site construction, 2) and/or offsite imported backfill.

Fill will be added to the pit areas in accordance with California Department of Transportation construction specifications. Relative compaction of not less than 95 percent will be obtained for a minimum depth of 0.5-foot below the final graded elevation and future structural footings. Relative compaction of not less than 90 percent will be obtained for all remaining lifts. The compacted fill will be completed to within nine inches of the final graded elevation for the future placement of a reinforced concrete cap. The surface will be constructed to facilitate conveyance of storm water to desilting basins prior to drainage into the storm drainage piping. The perimeter of the closure area will be bermed to prevent run-on and run-off. The concrete parking area will be graded to minimize ponding or standing water on the closure area following rainfall events.

##### 4.2 Drainage

Drainage diversion features will be designed and constructed to limit ponding, infiltration, inundation, erosion, and slope failure. Surface drainage will flow to catch basins and into storm drain piping constructed in accordance with California Department of Transportation specifications.

#### 5.0 CONCLUSIONS AND RECOMMENDATIONS

The metal concentrations detected in the soil and water samples in previous investigations are substantially below TTLC and STLC limits of Title 22 of the California Code of Regulations. VOC concentrations were also reported below Title 22 standards. Samples collected and tested for pH in June 1987 and August 1991 were found to be within an acceptable range for classification as non-hazardous material.

DICE 01619

**Kennedy/Jenks Consultants**

Based on a review of the chemical analyses data, the lithology underlying the lime pits, and the reported depth to groundwater, lime pits are not a threat to the environment. We recommend that detailed closure plans be developed to allow alternative land use for the area.

**DICE 01620**

**WP.001**

**924004.00**



**APPENDIX A**

**STABILITY ANALYSIS FOR OPEN PIT  
8832 DICE ROAD  
SANTA FE SPRINGS, CALIFORNIA  
MAY 13, 1991  
TRIAD GEOTECHNICAL CONSULTANTS, INC.**

STABILITY ANALYSIS FOR OPEN PIT

8832 DICE ROAD

SANTA FE SPRINGS, CALIFORNIA

JOB NUMBER 90-395

MAY 13, 1991



**TRIAD GEOTECHNICAL CONSULTANTS INC.**

*Soils Engineers and Geologists*

DICE 01622



# TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748

TELEPHONE (818) 964-2313

FAX (818) 810-0915

STABILITY ANALYSIS FOR OPEN PIT

8832 DICE ROAD

SANTA FE SPRINGS, CALIFORNIA

JOB NUMBER 90-395      MAY 13, 1991

REQUESTED BY:

Liquid Air  
2121 N. California Boulevard  
P.O. Box 8038  
Walnut Creek, CA 94596

Attention: Mr. Robert D. Predmore, Director

DICE 01623



# TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748

TELEPHONE (818) 964-2313

FAX (818) 810-0915

May 13, 1991

Job #90-395

Liquid Air  
2121 N. California Boulevard  
P.O. Box 8038  
Walnut Creek, CA 94596

Attention: Mr. Robert D. Predmore, Director

Subject: Stability Analysis for Open Pit  
8832 Dice Road  
Santa Fe Springs, California

Reference: 1) Recommendations for Stabilization of Vertical Cuts  
By Triad Foundation Engineering, Inc.  
Dated August 1, 1990

Dear Mr. Predmore:

In accordance with the provisions of our proposal dated August 31, 1990 and our related conversations, we have completed a geotechnical investigation for the evaluation of the stability of the subject pit.

[REDACTED]

[REDACTED]

[REDACTED] In order to safeguard the future performance of the pit, remedial measures will be required. The details of our findings and recommendations are provided in the accompanying report.

DICE 01624

We appreciate the opportunity to be of continued service. If you have any questions, please feel free to call this office at your convenience.

Respectfully submitted,

TRIAD GEOTECHNICAL CONSULTANTS, INC.

*Javed S. Chak*

Javed S. Chak  
G.E. 197

JSC/thf

Distribution: Addressee (4)





# TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748

TELEPHONE (818) 964-2313

FAX (818) 810-0915

## TABLE OF CONTENTS

### Transmittal Letter

	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Purpose & Authorization	1
1.2 Scope of Services	1-2
2.0 SITE INVESTIGATION	2
2.1 Site Description	2
2.2 Proposed Project	2-3
2.3 Field Investigation	3
2.4 Laboratory Tests	3
2.5 Subsurface Conditions	4
3.0 ANALYSIS	4
3.1 Fill Material	4-5
3.2 Stability Analysis	5-7
4.0 CONCLUSIONS AND RECOMMENDATIONS	7
4.1 Summary	7-8
4.2 Grading	8-9
4.3 Closure	9-10
5.0 APPENDIX	11
5.1 Site Exploration	11-12
5.2 Laboratory Tests and Results	12-13

### Plates

Plot Plan	A
Boring Logs	B-1 through B-5
Consolidation Curves	C-1 through C-7
Direct Shear Summaires	D-1 through D-4
Idealized Soil Strata	E
Proposed Sections with Buttress	F
Stability Analysis	G-1 through G-5

DICE 01626

INTRODUCTION

This report presents the results of a geotechnical investigation performed to assess the stability of an open pit and to provide mitigating measures if the pit is found to be unstable. This investigation was initiated upon the client's concerns regarding the stability of the pit and its impact on the site. The stability of the area was a special concern due to the presence of [REDACTED]

1.1 Purpose & Authorization

This phase of stability analysis is the result of the earlier investigation, see reference 1. The earlier work consisted of field reconnaissance and visual observations and as a result of this investigation a more detailed investigation was recommended. The scope of this work was detailed in our proposal dated August 31, 1990 and is summarized below. This work was authorized by Mr. Robert Pedmore, director of technical services of Liquid Air.

1.2 Scope of Services

The scope of work consisted of field investigation, laboratory testing and engineering analysis. Specifically, the scope of services included the following:

- (a) Drill 5 borings to the maximum depth of 20 feet.
- (b) Perform the site survey and produce topographic map with details of pit at the site.
- (c) Perform laboratory tests to determine the engineering properties of soils (strength, etc.) in the pit and its vicinity.

- (d) Perform stability analysis to evaluate the stability of the pit.
- (e) Prepare a report with findings and recommendations for the stabilization of the pit area.

## 2.0

## SITE INVESTIGATION

### 2.1 Site Description

The site is located north of Los Nietos Road and west of Norwalk Boulevard on Dice Road in the City of Santa Fe Springs. The property is an industrial site with administrative offices. The entire site is fenced with chain link type fence. The pit is located on the northern end of the property. The east, west and south ends of the pit are being used by the plant facilities, and on the north end there are railroad tracks. On the northeast corner of the pit the railroad tracks fall within 6 to 7 feet of the pit. Several parked rail cars were noted in that area.

For the location of the pit in relation to the railroad tracks and the property fence, see the enclosed Plate A.

### 2.2 Proposed Project

This area under investigation consists of a large open pit. The attached Site Plan, Plate A, shows the limit of the pit. The pit is approximately 100 feet wide and 250 feet long and its sides are about 25 feet high and essentially vertical. This pit is being used as a lime processing area. Because of its use the inside walls of the pit are mostly coated with lime.



On the north end of the pit, approximately 7 feet from the top of the pit railroad tracks are located. These tracks are being used to transport heavy goods. Railroad cars are expected to impose heavy surcharge and possible vibrations in the pit area. In communications with the railroad industry it was established that maximum load per axle of the railroad car is 80 kips. Therefore, 80 kips of load were distributed to two wheels as surcharge to the pit area.

On the southern end of the property a ramp leads down from the property to the bottom of the pit.

### 2.3 Field Investigation

Field investigation consisted of drilling five exploratory borings at the locations indicated on the Site Plan presented in the Appendix. These borings ranged from 11 to 21 feet in depth. A description of the methods used for the exploration is presented in the Appendix of this report.

### 2.4 Laboratory Tests

To evaluate engineering properties of the on-site soils, several laboratory tests were performed on the soil samples obtained from the site. The type of tests and test results are provided in the Appendix of this report.

## 2.5 Subsurface Conditions

The subsurface material at the bottom of the pit, in the upper strata, is fill which ranges 5 feet to 13 feet in depth. Fills are gray to grayish brown silty sands and sands. These soils are in a moist and medium dense to dense condition. An ammonia odor was noted in the fills. Underlying the fills are natural soils which consist of silty sands, sandy silts and clayey silts. More commonly fine and cohesive material was encountered in the lower strata. Natural soils are light gray and grayish brown sands and silts. These soils are slightly moist to moist, slightly porous, and are medium dense to dense.

At the ground surface level, the top of pit area, the natural soils were encountered at the ground surface. The soils in the upper 13 feet of stratum were classified as sandy silts. These soils are soft and porous in the upper 2 to 3 feet and below that they increasingly become firm to very firm. The lower strata are grayish brown sands which are dense. Ground water was not encountered in any of the borings to the depths of exploration.

## 3.0

### ANALYSIS

#### 3.1 Fill Material

Fill material will be required at the site to buttress the existing open pit. As will be noted in the section of Stability Analysis, two types of fill may be required at the site. High quality of fill will be necessary in the eastern portion and

somewhat lower quality presenting lower cohesion for the rest of the area in the pit. The fills with higher cohesion will be identified as Fill 1 and other fill as Fill 2.

Fill 1 should be silty clays or clayey silts and when compacted to 90 percent of its maximum dry density, it should exhibit a minimum 500 pounds per square foot cohesion and 28 degree angle of internal friction. This soil should be free of debris or any deleterious material.

Fill 2 may be silty clays, clayey silts, sandy silts or sandy silty clays, all free of debris and deleterious material. This soil, when compacted to 90 percent of its maximum dry density, should exhibit a minimum 200 pounds per square foot cohesion and 30 degree angle of internal friction. Samples of these soils should be made available to our office for testing prior to their use at the site. All fills must be approved by the geotechnical engineer from our office.

### 3.2 Stability Analysis

For stability analysis, the subsurface strata were idealized into three major layers, see Plate E. Layers 1 and 2 represent on-site natural soils above the base of the pit. Layer 3 is developed as a compacted fill layer. This fill will consist of selected import material. The import material may be classified into two categories. The fill to be used in the eastern portion

of the pit should provide a minimum cohesion of 500 psf and for the rest of the pit, the material with 200 psf is considered adequate.

The soil strength for each natural soil layer was evaluated in the laboratory. The test results are presented in the Appendix and the strength data is also summarized on the stability analyses sheets, see Plate E.

Stability analysis was performed for the pit, as is, using the representative soil strengths and using the Janbu method of analysis. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

To stabilize the pit, a scheme of buttressing the pit was tried. The sections used for analysis are presented in the Appendix. Basically, two sections were considered representative for the entire pit. Section A'-A" presented on Plate G-1 is used for the eastern portion of the pit. This section includes the railroad car loads. Section B-B' represents the rest of the pit. In the eastern portion of the pit (Area 1), next to the railroad tracks, a buttress at 2.0 to 1 (horizontal to vertical) was used to stabilize the pit. Based on higher fill strength ( $C = 500$  psf,  $\phi$

= 30 degrees) and 40 kips of surcharge load for each wheel of the car, the stability of the pit was evaluated. The results of the analysis are presented on Plate G-4. The results are based on two critical failure planes, one including one wheel load and the second two wheel loads.

The results show that the pit will be stable with a minimum factor of safety meeting the Code requirements. For the other areas of the pit the use of a 1.25 to 1 (horizontal to vertical) buttress fill will provide an adequate factor of safety for the pit. The results of the analysis are presented on Plate G-5 in the Appendix.

4.0

#### CONCLUSIONS AND RECOMMENDATIONS

[REDACTED]

An open pit which is the subject of this investigation is currently being used for lime processing. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Due to the processing of the lime, a 2 to 3 feet thick layer of lime was noted on the inside walls of the pit. Drilling at the selected locations showed that natural soils exist throughout

the site with the exception of the base of the pit where up to 13 feet of fills were encountered.

[REDACTED] The fills at the base of the pit are considered unsuitable for the stability of the pit, unless removed and recompactd.

[REDACTED] The import soil will be required for the construction of the buttress. The import soil consisting of Fill 1 and 2 should be silty clays, clayey silts, and silts and clays with some sands meeting the strength requirements as set forth in the sections above.

#### 4.3 Grading

All grading should conform to the requirements of the City of Santa Fe Springs and the standard grading specifications presented in this report.

Prior to grading, all structures, vegetation, and debris should be removed from the site. Uncertified fills and loose soils should be excavated to firm natural soils.

Areas to receive fill should be scarified 6 to 8 inches to adjust the moisture content to near optimum conditions and then compacted to minimum requirements. Fills should be placed in 6 to 8 inch loose lifts at near optimum moisture conditions and compacted to not less than 90 percent of the maximum dry density. Maximum densities for the typical soils should be established in accordance with the standard ASTM D1557-78 method of test.

Selected fills for the site should be approved by the Engineer prior to acceptance at the site, to insure a similar quality to that required by design.

Grading operations should be conducted under the observation of the Soils Engineer to provide assurance of compliance with job specifications and a Certification of Compacted Fill upon completion of grading.

#### 4.3 Closure

This report was prepared to aid the project designers, reviewing agencies, grading contractors, owners, and other concerned parties in completing their responsibilities for the successful completion of this project. The findings and recommendations were prepared in accordance with generally accepted professional engineering principles and practices. We make no other warranty, neither expressed nor implied.

The findings and recommendations are based on results of the field and laboratory investigation, combined with interpolation of soil conditions between boring locations. If conditions are encountered during grading or construction that appear to be different than those reported, this office should be notified.

All footing excavations should be inspected and approved by the Soils Engineer prior to placing forms or reinforcement, to insure minimum depths into the recommended supporting material.



The following Appendix contains a description of methods and laboratory test results which were used in the engineering evaluations and recommendations contained in the report.

Site Exploration

On February 5, 1991, field explorations were made by drilling five borings at the approximate locations indicated on the attached Plot Plan, Plate A. A truck-mounted, rotary-type drilling rig equipped with an 18-inch bucket auger was used to advance the borings to depths of 11 to 21 feet below the existing grade.

Relatively undisturbed samples of soils were obtained in the field using a barrel drive sampler with a tapered cutting shoe. The soil samples were retained in 2.5-inch diameter by 1.0-inch rings within the sampler and secured in moisture resistant bags as soon as taken to minimize the loss of field moisture while being transferred to our laboratory for testing.

Continuous observations of the materials encountered in the borings were recorded in the field. The soils were classified in the field by visual and textural examination, and these classifications were supplemented by obtaining bulk soil samples for future examination or testing in the laboratory to assure

classifications in accordance with the Unified Soil Classification System.

Descriptions of the visual observations of color and soil condition, depth of undisturbed cores or bag samples, field density, and field moisture content are presented on the Boring Logs, Plates B.

## 5.2 Laboratory Tests and Results

Consolidation: Compressibility of the soils was determined by consolidation tests, which were conducted on selected undisturbed samples to represent the typical foundation supporting soils. The specimens were loaded initially at field moisture and later, at a specified load, water was added and allowed to remain until primary consolidation had been completed. The amount of settlement was recorded for each increment before applying additional loads and after completion of the loading, loads were removed and the rebound recorded. Consolidation curves obtained from test results are presented on Plates C.

Direct Shear Tests: Direct shear tests were conducted on undisturbed samples of the investigated soils to determine the angle of internal friction and cohesion. Samples were inundated for a minimum of 24 hours under normal load before testing and shear loads were applied quickly in accordance with the standard procedure for consolidated undrained shear tests. Horizontal

forces were applied to pass the peak shear and determine the residual shear strength of the soil specimen. The results and residual shear strengths under increased moisture conditions are shown on Plates D.

# BORING LOG

Project 8832 Dice Road - Santa Fe Springs

Boring No 1 Location see plot plan Job No. 90-395 Drill Date 2-5-91

Surface Elev                      Logged by JLK Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		FILL: Gravelly Fine to Coarse SAND - gray-brown, moist, moderately dense, some asphalt debris No debris Black	SW	1/4" (bounced)	C/B	94.2	9.9
	5		FILL: Silty Fine SAND - gray, moist, moderately dense to dense - has strong ammonia odor	SM	4	C/B	107.0	19.6
	10		Dark gray-brown, less Silt, strong odor, trace of porosity		7	C	110.2	11.1
	15		NATURAL: Sandy SILT with a trace of Clay - light gray-brown, moist to very moist, very firm to stiff - no contamination No Clay	ML	3	C/B	103.9	21.5
	20		SILT with Clay - red-brown, moist, very firm to stiff, slight trace of porosity		3	C	111.9	18.2
	20.0		END OF BORING 20.0 FEET No Ground Water or Caving					
	25							
	30							

DICE 01640

Object 8832 Dice Road - Santa Fe Springs

Surface Elev \_\_\_\_\_ Logged by JLK

Driving Weight 2400#

**DICE 01641**

# BORING LOG

Project 8832 Dice Road - Santa Fe Springs

Boring No. 3 Location see plot plan Job No. 90-395 Drill Date 2-5-91

Surface Elev. \_\_\_\_\_ Logged by JLK

Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint RS - Rupture Surface C - Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		LIME MATERIAL -light gray			B		
			FILL: Sandy SILT - dark gray-brown, moist, firm	ML	push 6"	C	60.6	46.4
			FILL: Gravelly Fine to Coarse SAND - dark-gray, moist, dense - well cemented Black - mod. ammonia odor, very moist	SW		B		
	5							
			FILL: Fine SAND - gray-brown, moist, moderately dense to dense	SP	6	C	108.9	16.8
			NATURAL: Sandy SILT - gray-brown, moist, <del>very firm to stiff</del>	ML				
	10		Light gray-brown, very moist		2	C	89.5	32.3
			Trace of caliche					
	15				2	C	98.0	26.7
	20		END OF BORING 16.0 FEET No Ground Water or Caving					
	25							
	30							
			DICE 01642					

# BORING LOG

Project 8832 Dice Road - Santa Fe Springs

Boring No 4 Location see plot plan Job No. 90-395 Drill Date 2-5-01

Surface Elev                      Logged by JLK Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		LIME MATERIAL					
			FILL: Fine to Coarse SAND - gray, moist, moderately dense to dense	SW				
			Some Gravel - dark gray, well cemented, dense, very moist to wet					
	5							
			FILL: Fine SAND - gray-brown, moist, dense	SP	12	C	118.3	12.6
	10		NATURAL: Clayey SILT with many caliche nodules - gray-brown, moist, firm to very firm Some Sand	ML	push & tap	C	102.5	20.8
			Some caliche nodules					
	15				2	C	99.2	25.8
	20		END OF BORING 16.0 FEET No Ground Water or Caving					
	25							
	30							

DICE 01643

# BORING LOG

Project 8832 Dice Road - Santa Fe Springs

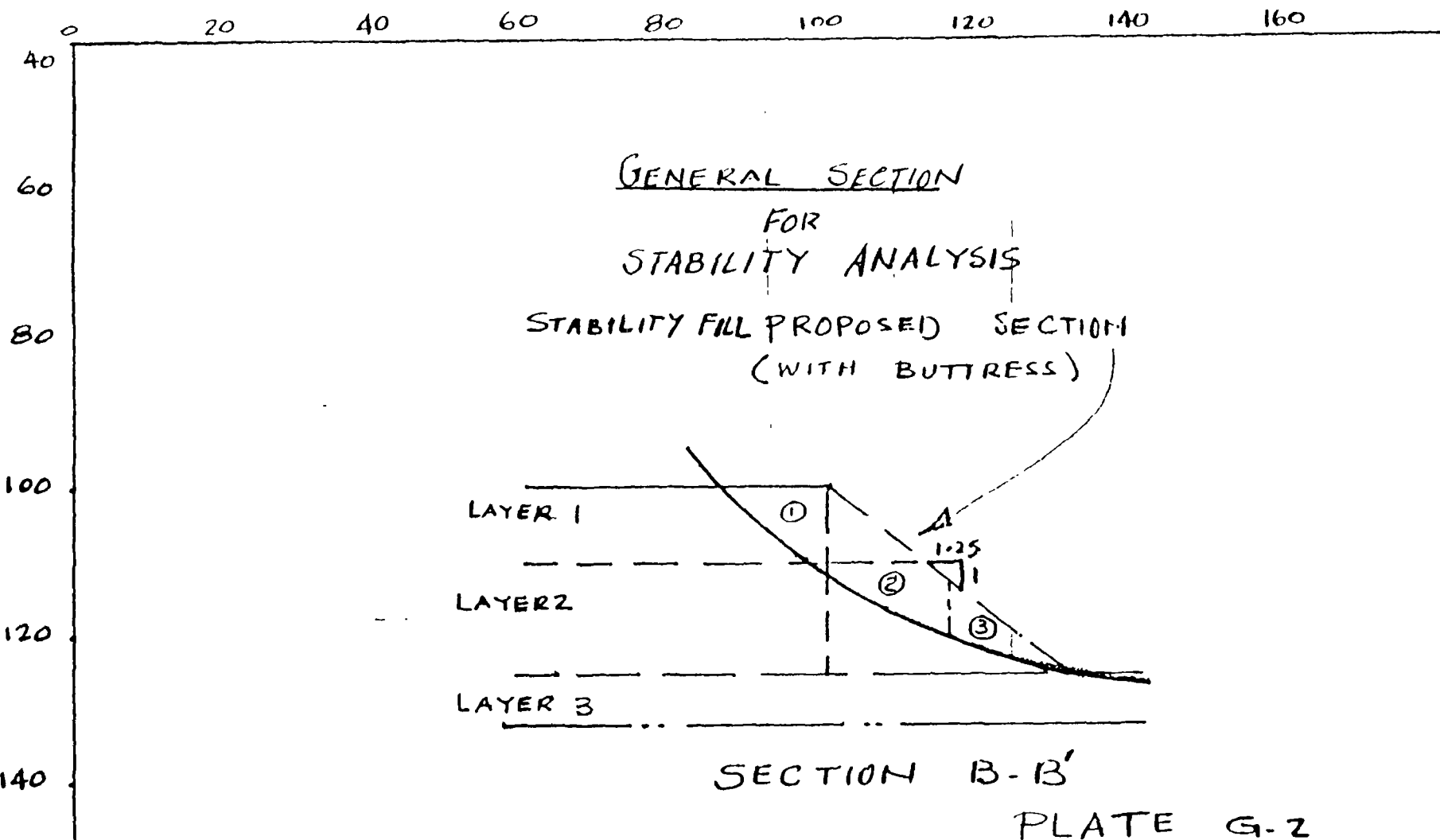
Boring No 5 Location see plot plan Job No. 90-395 Drill Date 7-5-60

Surface Elev                      Logged by JLK Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0							
			SILT with Sand & Clay - brown, moist, firm, slightly porous	ML	1	C	97.0	20.
	5		Moist to very moist, firm, trace of porosity		push & hold	B C	91.7	22.
			Sandy SILT - brown, moist, very firm					
	10		Red-brown, stiff Some Clay, trace of porosity		4	C	114.5	14
	15		Fine to Coarse SAND with gravel - gray-brown to light red-brown, moist, dense	SW	5	C	112.7	13
			Fine to Medium SAND with some Coarse Sand					
			Gravelly Fine to Coarse SAND - light gray-brown Strange odor - strong					
	20				10	C	118.1	2
	25		END OF BORING 21.0 FEET No Ground Water or Caving					
	30							

DICE 01644





DICE 01645

	TRIAD GEOTECHNICAL CONSULTANTS INC.		
	Consulting Geologists - Soils Engineering		
	Job no 90-395	Date 5-12-91	Scale 1"=20'

By JSC

# ROTATIONAL ANALYSIS USING JANBU'S DIMENSIONLESS PARAMETERS

(Harvard Soil Mechanics Series No. 46)

## SECTION

STABILITY OF EXISTING PIT

## SHEAR STRESS PARAMETERS

Unit Weight,  $\gamma$  = 120 lbs./cu. ft.  
Cohesion,  $C$  = 200 lbs./sq. ft.  
Angle of Internal Friction,  $\phi$  = 35 degrees  
Tangent  $\phi$  = 0.7

## CALCULATIONS

Height of Section = 24 feet  
Slope of Section = 0.67:1  
 $\frac{\gamma H}{C}$  = 14.4  
 $\lambda c \phi = \frac{\gamma H}{C} \tan \phi = 10.0$   
 $N_{cf}$  (from Janbu's curves) = 16

## FACTOR OF SAFETY

$$F.S. = N_{cf} \div \frac{\gamma H}{C}$$

[REDACTED]



TRIAD GEOTECHNICAL CONSULTANTS INC.

Consulting Geologists - Soils Engineering

Job no: 90-395 Date: 5-13-91 Scale: N/A By: JSC

DICE 01646

PLATE G-3

# STABILITY ANALYSIS

SEE ATTACHED PLATE G-1

FAILURE PLANE	SLICE NO	AREA (FT) <sup>2</sup>	WEIGHT (K)	Cos	Sin	F <sub>N</sub>	F <sub>T</sub>	CL
I	1	60	40 + 7.2	.74	.67	35	31.5	3.2
	2	300	36.4	.93	.37	33.8	13.5	21.0
	3	35	4.2	1.0	0	4.2	0	5.0
II	1	176	80 + 21	.76	.64	76.8	64.6	5.5
	2	470	56.4	.96	.26	54.0	14.6	21.5
	3	35	4.2	1.0	0	4.2	0	5.5

$$F.S. I = \frac{35 \times .7 + 38 \times .58 + 29.2}{45} = \frac{75.7}{45} = 1.68 > 1.5$$

$$F.S. II = \frac{76.8 \times .7 + 58.2 \times .58 + 32.5}{79.2} = \frac{120}{79.2} = 1.52 > 1.5$$

O.K.

DICE 01647

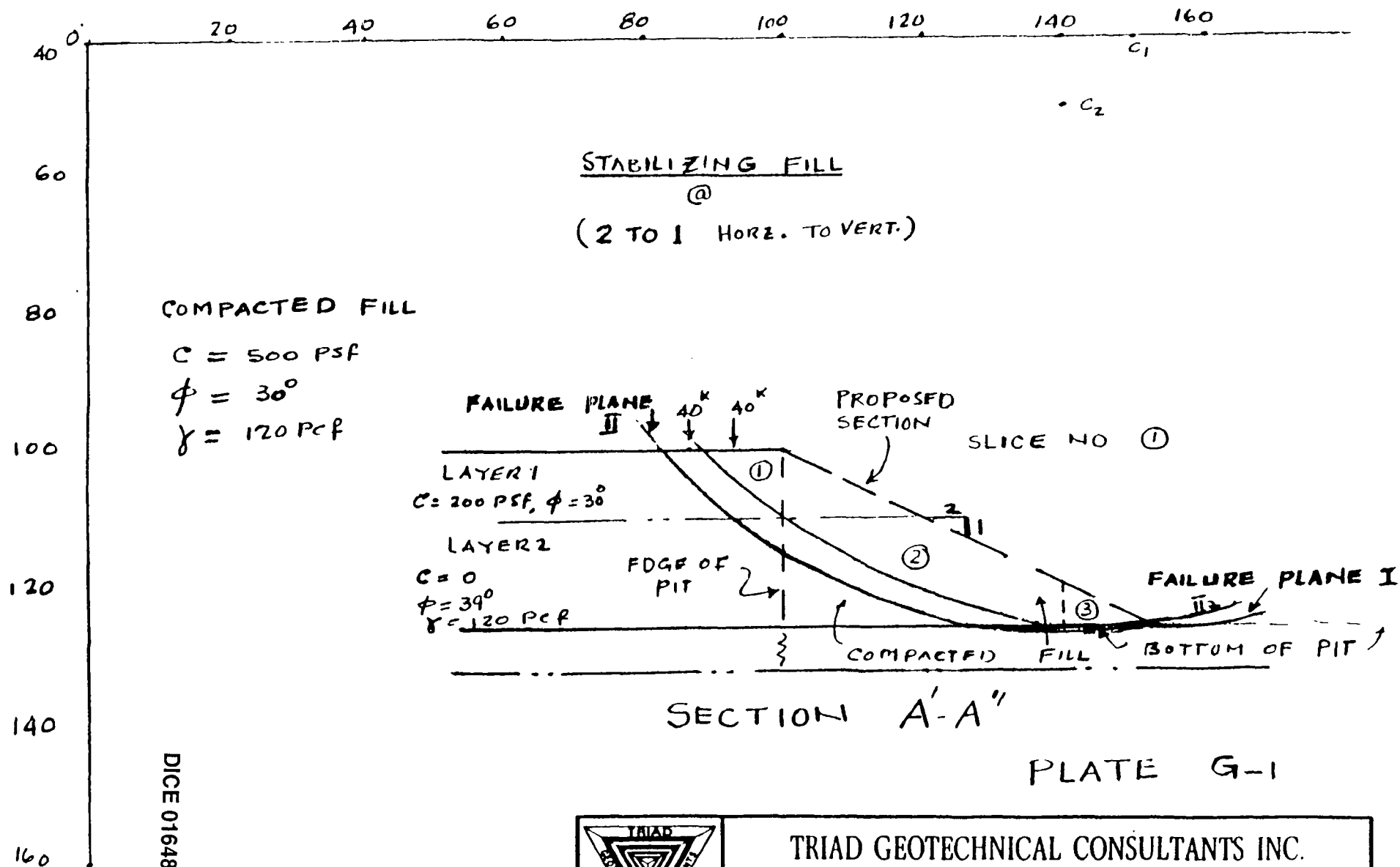
PLATE G-4



TRIAD GEOTECHNICAL CONSULTANTS INC.

Consulting Geologists - Soils Engineering

Job no: 90-395 Date: 5-13-91 Scale: N.A By: JSC



DICE 01648



TRIAD GEOTECHNICAL CONSULTANTS INC.

Consulting Geologists - Soils Engineering

Job no. 70-395 Date 5-13-91 Scale 1" = 20' By JSc

PLATE G-1

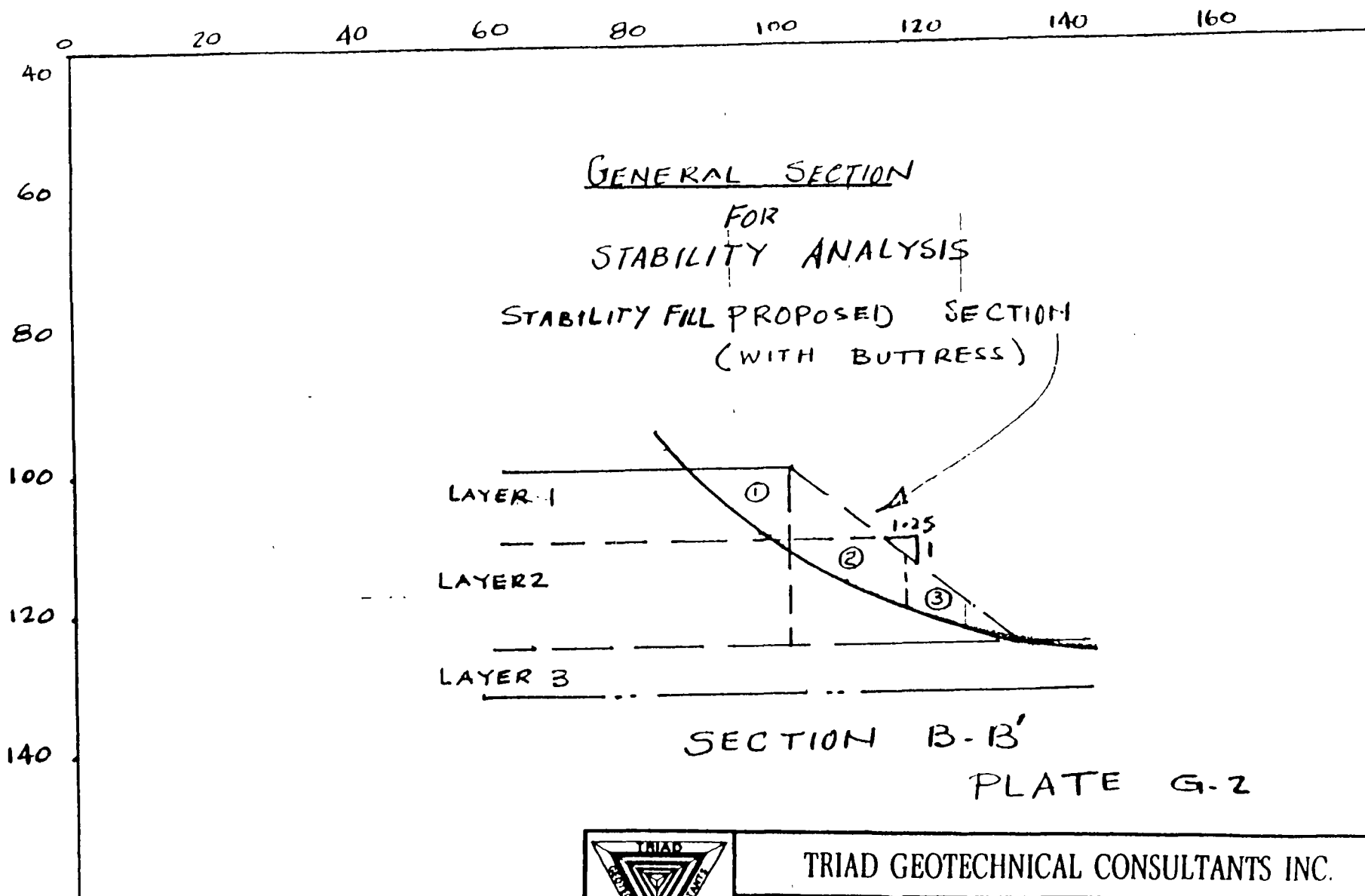



PLATE G-2

	<b>TRIAD GEOTECHNICAL CONSULTANTS INC.</b>		
	Consulting Geologists - Soils Engineering		
	Job no: 90-395	Date 5-23-91	Scale 1" = 20'

DICE 01649

# ROTATIONAL ANALYSIS USING JANBU'S DIMENSIONLESS PARAMETERS

(Harvard Soil Mechanics Series No. 46)

## SECTION

STABILITY OF EXISTING PIT

## SHEAR STRESS PARAMETERS

Unit Weight,  $\gamma$  = 120 lbs./cu. ft.  
Cohesion,  $C$  = 200 lbs./sq. ft.  
Angle of Internal Friction,  $\phi$  = 35 degrees  
Tangent  $\phi$  = 0.7

## CALCULATIONS

Height of Section = 24 feet  
Slope of Section = 0.67:1  
 $\frac{\gamma H}{C}$  = 14.4  
 $\lambda_c \phi = \frac{\gamma H}{C} \tan \phi = 10.0$   
 $N_{cf}$  (from Janbu's curves) = 16

## FACTOR OF SAFETY

$$F.S. = N_{cf} \div \frac{\gamma H}{C}$$

[REDACTED]



TRIAD GEOTECHNICAL CONSULTANTS INC.

Consulting Geologists - Soils Engineering

Job no: 90-395 Date: 5-13-91 Scale: N/A By: JSC

DICE 01650

PLATE G-3

# STABILITY ANALYSIS

SEE ATTACHED PLATE G-1

FAILURE PLANE	SLICE NO	AREA (FT) <sup>2</sup>	WEIGHT (K)	Cos	sin	F <sub>N</sub>	F <sub>T</sub>	CL
I	1	60	40 + 7.2	.74	.67	35	31.5	3.2
	2	300	36.4	.93	.37	33.8	13.5	21.0
	3	35	4.2	1.0	0	4.2	0	5.0
II	1	176	80 + 21	.76	.64	76.8	64.6	5.5
	2	470	56.4	.96	.26	54.0	14.6	21.5
	3	35	4.2	1.0	0	4.2	0	5.5

$$F.S. I = \frac{35 \times .7 + 38 \times .58 + 29.2}{45} = \frac{75.7}{45} = 1.68 > 1.5$$

$$F.S. II = \frac{76.8 \times .7 + 58.2 \times .58 + 32.5}{79.2} = \frac{120}{79.2} = 1.52 > 1.5$$

O.K.

DICE 01651

PLATE G-4



TRIAD GEOTECHNICAL CONSULTANTS INC.

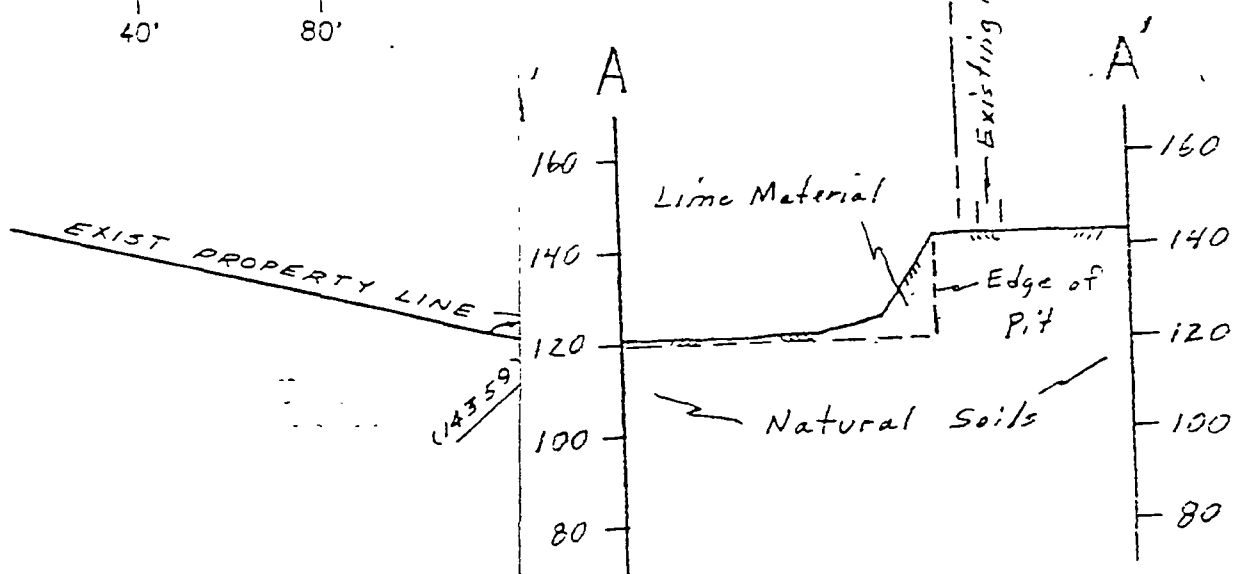
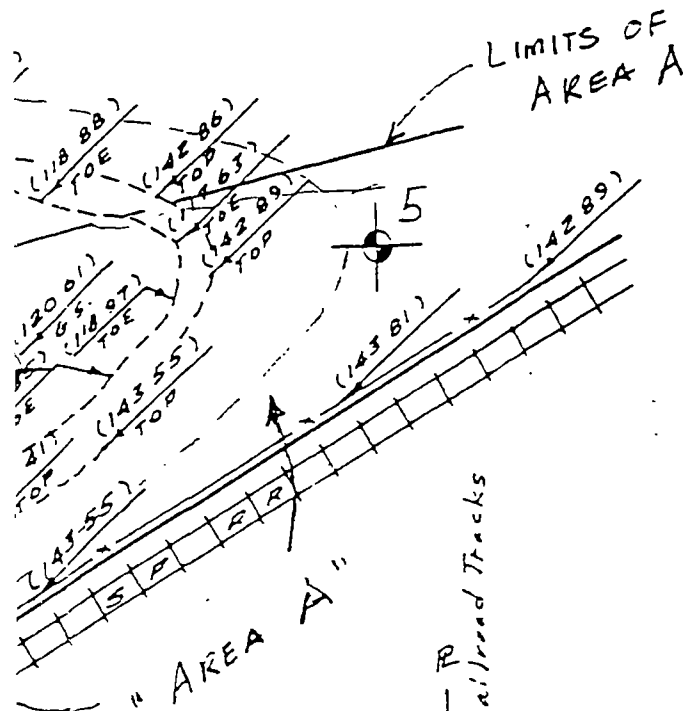
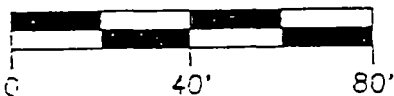
Consulting Geologists - Soils Engineering

Job no: 90-395 Date: 5-13-91 Scale: N.A By: JSC

# PLAN



1"=40'



TRIAD GEOTE

Consulting C

Job no: 90-395 Date: 5-13-

PLATE A

DICE 01652



0  
10  
20  
25  
32±

LAYER 1

LAYER 2

LAYER 3

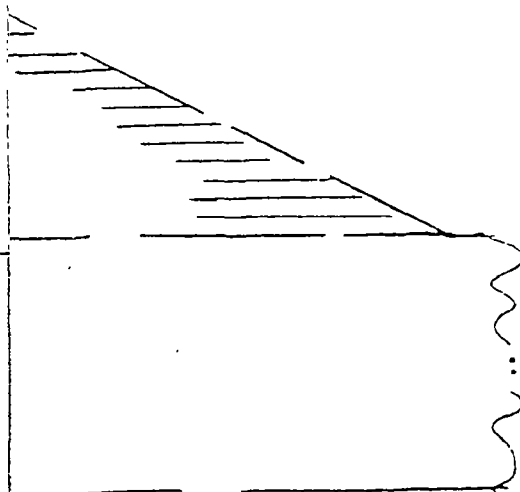


PLATE F

TECHNICAL CONSULTANTS INC.

Geologists - Soils Engineering

Scale: 1" = 5' By: JSC

**Kennedy/Jenks Consultants**

**APPENDIX B**

**WASTE CLASSIFICATION FORM  
SUBMISSION FOR  
LIQUID AIR CORPORATION, SANTA FE  
SPRINGS, CALIFORNIA  
JUNE 24, 1987  
RALPH STONE AND COMPANY**

**DICE 01654**

RALPH STONE AND COMPANY INC

WASTE CLASSIFICATION FORM  
SUBMISSION FOR  
LIQUID AIR CORPORATION, SANTA FE  
SPRINGS, CALIFORNIA

Submitted to:  
California Regional Water Quality  
Control Board

June 24, 1987

Prepared by:  
Ralph Stone and Company  
10954 Santa Monica Blvd.  
Los Angeles, CA 90025  
213-478-1501

DICE 01655



June 22, 1987  
File No. 2142

California Regional Water Quality  
Control Board  
107 South Broadway, Suite 4027  
Los Angeles, California 90012-4596

ATTENTION: Ms. Mavis Kent

REFERENCE: Waste Classification Form Submission for Liquid Air Corporation  
Santa Fe Springs, CA.

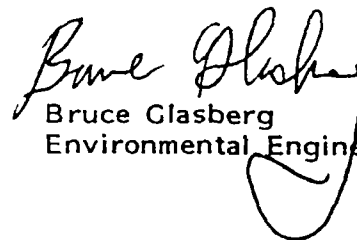
Dear Ms. Kent:

Please find enclosed a completed Waste Classification Form for Liquid Air Corporation, located at 8832 Dice Road, Santa Fe Springs, CA, 90670. This submission should satisfy all requirements of the Toxic Pits Cleanup Act (TPCA) of 1984.

Results of samples submitted to the laboratory indicate that the lime pits are non hazardous. No parameter was found to exceed state standards. Please review the enclosed data. If you have any questions, please call the undersigned or Richard Kahle.

Sincerely,

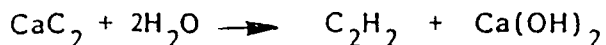
RALPH STONE AND COMPANY, INC.

  
Bruce Glasberg  
Environmental Engineer

BG:gw  
Enc.

DETERMINATION OF WASTE  
CLASSIFICATION OF TWO LIME PITS  
AT LIQUID AIR CORPORATION  
SANTA FE SPRINGS, CA

Liquid Air Corporation obtains "carbide lime" as a by-product of the generation of acetylene from calcium carbide. Calcium carbide ( $\text{CaC}_2$ ) reacts with water ( $2\text{H}_2\text{O}$ ) to form acetylene ( $\text{C}_2\text{H}_2$ ) and carbide lime or calcium hydroxide ( $\text{Ca(OH)}_2$ ). The actual equation is:



Enclosed in Exhibit B is a pamphlet put out by the Compressed Gas Association describing carbide lime generation from acetylene generators.

There are currently two pits used by Liquid Air Corp. One pit receives hot, liquid carbide lime from the acetylene generator. Once this pit is full, it is allowed to cool and solidify. The second pit is then filled with the hot, liquid carbide lime from the acetylene generator. Figure 1 shows the effluent hose leading to the liquid pit (on the right). On the left side of Figure 1 is the dry pit. Figure 2 shows the dry pit being excavated. The excavated solid lime is re-liquified (Figure 3) and sold as construction material for road stabilization.

Since each pit is filled with fresh, hot, liquid lime, allowed to solidify, then excavated, a composite sample from one pit should represent both pits. There is no variation of the raw material being fed into the acetylene generator, therefore, there will be no variation of the chemical constituents in each of the lime pits.

Laboratory results indicate no hazardous constituents in the solid lime pit. All parameters tested for were below state standards. The pH was 11.9 in both the liquid and solid pits. While this value shows caustic corrosivity, it is below the 12.5 value deemed necessary for classification as a hazardous waste "corrosive".



Figure 1 Effluent hose from acetylene generator seen leading into liquid lime pit. On the right is the solid lime pit.



Figure 2 Excavation of solid lime pit.



Figure 3 Arrow indicates re-liquidified lime which will be loaded onto a tank truck and used for road stabilization.

# WASTE CLASSIFICATION FORM

1. Name and Address of Waste Facility.

a. Mailing address. LIQUID AIR CORP. INDUSTRIAL GASES DIVISION  
8832 DICE ROAD  
SANTA FE SPRINGS, CA 90670

b. Location at which waste is generated, if different from above.

c. Contact person and phone number.

STEVE PEBLER, PLANT MGR . . 213-945-1383

2. Description of Waste:

a. Physical description. HYDRATED LIME: SEMI-SOLID:

Approximate composition  $\Rightarrow$  50% WATER  
46%  $\text{Ca(OH)}_2$  Calcium hydroxide  
1.5%  $\text{CaCO}_3$  Calcium carbonate

b. Quantities produced per unit time. Balance  $\text{SiO}_2$ ,  $\text{Mg(OH)}_2$ , Free Carbon.

c. Process used to generate waste.

ACETYLENE GENERATION, CALCIUM CARBIDE TO WATER PROCESS.

d. Present method of waste disposal.  $\text{CaC}_2 + 2\text{H}_2\text{O} = \text{C}_2\text{H}_2 + \text{Ca(OH)}_2$   
Calcium carbide + water = acetylene gas + calcium hydroxide

LIME IS STORED IN EARTHEN (DIKE) CONTAINMENT POND ON SITE. LIME IS SUBSEQUENTLY REMOVED FROM POND AND SOLD TO CUSTOMER.

3. Sampling Information:

a. Name and address of company that sampled the waste.

Ralp Stone and Company, Inc., 10954 Santa Monica Blvd.,  
Los Angeles, CA 90025; 213-478-1501

(rev: FO3 9/83)



Sampling performed by Bruce Glasberg, Staff Engineer

c. Dates and locations of collected samples:

Sampling performed on 6/4/87. Eight samples were taken from the solid pit,  
four samples taken from the liquid pit.

TYPE OF SAMPLE COLLECTED	LOCATION	DATE COLLECTED	FIELD SAMPLE NO.
Grab samples	solid lime pit	6/4/87	S1 thru S8
Grab samples	liquid lime pit	6/4/87	L1 thru L4
Exhibit 4 contains drawings of both pits and sample locations			

d. Description of sampling methodology:

- (1) Sampling technique at site or facility. In the solid pit, grab samples were taken with a clean spatula into clean glass jars. The spatula was cleaned after each sample with distilled water. In the liquid pit, a glass jar was attached to twenty feet of PVC pipe. Samples were scooped into the jar and poured into a cleaned glass jar. The jar attached to the PVC pipe was cleaned after each sample was collected. Collected samples were stored in an ice chest. Each sample was properly labelled. The caps were secured with electric tape.
- (2) Sample handling and preservation prior to laboratory analysis. Samples were stored in an ice chest prior to delivery to the laboratory. As soon as the sampling operation was completed, prompt delivery to the testing laboratory was made. The laboratory was instructed to place the samples in refrigerators. Appropriate chain-of-custody documentation was used. See Exhibit 3 for copies of chain-of-custody documents.

4. Testing Laboratories Information: Calcium Carbide

a. Name and address of laboratories:

b. Test methods and references:

SPECIFIC TEST	METHOD	REFERENCE
1. Organic Analysis <i>ORGANIC PARAMETERS ABSENT FROM PROCESS REACTANTS AND PRODUCTS, SEE ITEM 2 C.</i>		
- Chlorinated Pesticides	N/A	
- Polychlorinated Biphenyls	N/A	
- Chlorophenoxy Acid Pesticides	N/A	
- Nitroaromatics	N/A	
- Organophosphorus Pesticides	N/A	
- Phenols	N/A	
- Polynuclear Aromatic Hydrocarbons	N/A	
- Priority Pollutants	N/A	
- Volatile Organics	N/A	
- Carbamates	N/A	
- Other (specify)	N/A	
2. Inorganic Analysis, Metallic		
- Antimony	EPA 3050	
- Arsenic	EPA 3050	
- Barium	EPA 3050	
- Beryllium	EPA 3050	
- Cadmium	EPA 3050	
- Chromium (VI)	EPA 3050	
- Chromium (total)	EPA 3050	
- Cobalt	EPA 3050	

SPECIFIC TEST	METHOD	REFERENCE
Inorganic Analysis, Metallic (continued)		
- Copper	EPA 3050	
- Lead, inorganic	EPA 3050	
- Lead, organic	EPA 3050	
- Mercury	EPA 3050	
- Molybdenum	EPA 3050	
- Nickel	EPA 3050	
- Selenium	EPA 3050	
- Silver	EPA 3050	
- Thallium	EPA 3050	
- Vanadium	EPA 3050	
- Zinc	EPA 3050	
- Other (Specify)	EPA 3050	
3. Inorganic Analysis, Non-Metallic		
- Total cyanide	EPA 335.5	
- Cyanide (chlorination)	EPA 335.1	
- Fluoride	EPA 340.1	
- Sulfide	EPA 376.2	
- Asbestos	N/A	ABSENT FROM PROCESS REACTANTS AND PRODUCTS
- pH	EPA 150.1	
- Free liquids	N/A - material dry	
- Other (specify)		
4. Special Tests		
- California Waste Extraction Test	Sec. 66700	
- Tests for Hazardous Properties		
- Aquatic 96 hr LC <sub>50</sub>	N/A	Not near water
- Flashpoint	N/A - no flammable constituents	
- Corrosivity	N/A - testing for pH already	
- Head Space	Sec. 66696(a)(10)	
- Other (specify)		

\* If this is not a standard method (APHA-AWWA-WPCF, ASTM, AOAC, ES please attach a copy of method with this report.

c. Names and qualifications of persons testing waste.

All laboratory analysis performed by Brown and Caldwell Laboratories, 373 South Fair Oaks Avenue, Pasadena, CA 91105. The Dept. of Health Services Laboratory Certification for Brown and Caldwell is enclosed in Exhibit I.

d. Preparation of laboratory samples from field samples.

EPA approved methods were utilized. Specific digestion method followed was EPA 3050 for metals analysis. Other preparation procedures are included in Methods listed on pages 3 and 4.

e. Sample identification information:

TYPE OF SAMPLE TESTED	FIELD SAMPLE NO(S)	LABORATORY SAMPLE NO.	DATE TESTED
Grab Sample	S1 through S8	Same	6/5/87 - 6/19/87
Grab Sample	L1 through L4	Same	6/5/87 - 6/19/87

5. Quality Assurance and Control: (See Appendix 1)

a. On file with the DOHS Hazardous Materials Laboratory;

yes X no       

b. Enclosed: yes        no X;

c. Will be forwarded to DOHS by                                 ;

6. Laboratory Results

a. Waste Components and California Waste Extraction Test Summary (Form 1).

b. Aquatic Bioassay. Use California Department of Fish Bioassay Data Sheet.

c. Submission of Data and Reports (See Appendix 1).

7. Acute toxicity calculations from published data: (Form 2)

8. Corrosivity, Flammability, Reactivity (Form 3)

9. References (Attach complete citations)

10. Certification by person(s) who is the responsible manager of the facility.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this notification and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature   

Date   

Printed Name   

Title

## WASTE COMPONENT AND WASTE EXTRACTION TEST SUMMARY

Laboratory Sample # Composite S1-S8Date Analyzed 6/5/87 - 6/19/87Type of Sample Tested Composite of grab samples from solids pit

## I. Chemical Analyses and Extractions

Waste Component	Total Concentration (mg/kg)	California Extraction Test (mg/l)
Inorganic Analysis:		
Antimony	8	
Arsenic	0.6	
Barium	13	
Beryllium	0.09	
Cadmium	0.5	
Chromium (III)	1.0	
Chromium (VI)	4.5	
Cobalt	1	
Copper	2.9	
Fluoride	1	
Lead	5	
Mercury	NA - not found in raw material	
Molybdenum	5	
Nickel	11	
Selenium	0.4	
Silver	NA - not in raw material	
Thallium	5	
Vanadium	17	
Zinc	2	
Organic Analysis: ORGANIC PARAMETERS ABSENT FROM PROCESS REACTANTS AND PRODUCTS.		
Chlorinated Pesticides	N/A	
Polychlorinated Biphenyls	N/A	
Chlorophenoxy Acid Pesticides	N/A	
Nitroaromatics	N/A	
Organophosphorus Pesticides	N/A	
Phenols	N/A	
Polynuclear Aromatic Hydrocarbons	N/A	
Priority Pollutants	N/A	
Volatile Organics	N/A	
Carbates	N/A	
Other (specify)	N/A	
pH	Not Applicable	
Sulfide	43	
Cyanide(Total) Cyanide(amenable to chlor.)	Cyanide results unable to determine due to interferences.	

## II. Summary

Concentration (mg/l)	
59-nt LC <sub>50</sub> for Waste	

## III. Head Space Vapor Concentration

Component	Molecular weight	Weight of component in syringe (mg)	Head space vapor concentration

$$(CA) = \frac{(QA) (R)}{(MW) (G)}$$

where (QA) = quantity of component in head space vapor (mg)

(MW) = molecular weight (mg/mmmole)

(R) = 24.5 ml/mmmole

(G) =  $2 \times 10^{-6} \text{ M}^3$

(CA) = Head space vapor concentration (ppm)

Above calculations not necessary because no organic (volatile) constituents are present.

## FORM 2

ACUTE TOXICITY CALCULATIONS<sup>(1)</sup>

WASTE COMPONENT*	TOTAL CONCENTRATION PPM	AVERAGE <sup>(2)</sup> LD <sub>50</sub> ORAL RATE		$\frac{Ax}{\%Ax=10,000}$ LD <sub>50</sub> Ax Given	AVERAGE <sup>(2)</sup> LC <sub>50</sub> DERMAL		$\frac{\Sigma Ax}{LD_{50} Ax}$
		(mg/kg)	(rel.)		(mg/kg)	(rel.)	
Arsenic	0.6	150	NIOSH-ave of LDLo	$4 \times 10^{-7}$			
Barium	13	180	NIOSH for BaCl <sub>2</sub>	$7.2 \times 10^{-6}$			
Beryllium	0.09	0.496	NIOSH-IVN LD50	$1.8 \times 10^{-5}$			
Chromium(t)	1.0	1870	NIOSH for CrCl <sub>3</sub>	$5.3 \times 10^{-8}$			
Copper	2.9	140	NIOSH for CuCl <sub>2</sub>	$2.0 \times 10^{-6}$			
Nickel	11	5	NIOSH-LDLo gpg	$2.2 \times 10^{-4}$			
Vanadium	17	50	NIOSH-SCU LD50	$3.4 \times 10^{-5}$			
Zinc	2	350	NIOSH-for ZnCl <sub>2</sub>	$5.7 \times 10^{-7}$			

DICE 01668

\* Chemicals which had analytical values below the detection limit are not included.

Ave = average  
IVN = intravenous  
gpg = guinea pig  
SCU = subcutaneous  
ipr = intraperitoneal

SUM  $2.8 \times 10^{-4}$ CALCULATED TOXICITY  $357,142 \text{ mg/kg}$ 

SUM

CALCULATED TOXICITY



## CALCULATIONS SUMMARY

### NOTE:

(a) Average or most reliable values listed for individual compounds.

$$(b) \text{ Calculated } LD_{50} = \frac{100}{\sum \% \Lambda_x} LD_{50 \Lambda_x}$$

where  $LD_{50 \Lambda_x} = LD_{50's}$  of the pure toxic constituents  $\Lambda_1, \Lambda_2, \Lambda_3$

$\% \Lambda_x$  = concentration by weight in the waste (total ppm/10,000)

## FORM 3

## CORROSIVITY, FLAMMABILITY, REACTIVITY OF WASTE

Parameter	Experimental data or certification by chemist <sup>@</sup>	Reference <sup>#</sup>
Corrosivity		
- pH* 0% dilution	11.9	see item 4b
- pH* 50% dilution		see item 4b
- corrosion rate* (mm/yr)		see item 4b
Flammability		
- Flash point* (°C)	N	see item 4b
- Causes fire	N	
- Flammable gas	N	
- Flammable solid	N	
- Oxidizer	N	
Reactivity		
- Unstable		
- Reacts with H <sub>2</sub> O	N	
- Forms potentially explosive mixture with H <sub>2</sub> O	N	
- Generates toxic gases with H <sub>2</sub> O	N	
- Is a cyanide or sulfide between pH 2 and 12.5 which generates toxic gases	<10 mg/kg CN generated <1 mg/kg Sulfide generated	
- Detonates or reacts at standard temperature, pressure	N	
- Detonates if heated under confinement or with initiating source	N	
- Forbidden or class B explosive	N	

## NOTES:

<sup>@</sup> Fill in as follows:

Code	Certification
Y	yes
N	no
X	not applicable

<sup>#</sup> Optional

\* Supply experimental data

EXHIBIT 1

Brown and Caldwell Hazardous  
Waste Laboratory Certification

STATE OF CALIFORNIA  
DEPARTMENT OF HEALTH SERVICES

# HAZARDOUS WASTE TESTING LABORATORY CERTIFICATE

is hereby granted to

BROWN AND CALDWELL LABORATORY

PASADENA

to conduct analysis of hazardous waste in the following test categories:

FULL ORGANIC CHEMICAL ANALYSIS  
FULL INORGANIC CHEMICAL ANALYSIS  
PHYSICAL PROPERTY TESTING  
CALIFORNIA WASTE EXTRACTION TEST

This Certificate is granted in accordance with provisions of Article 8.5,  
Chapter 6.5, Division 20 of the Health and Safety Code.



Certificate No. 105  
Expiration Date APRIL 3, 1988

Issued at Berkeley, on APRIL 4, 1986

by R. L. H. [Signature]  
Chief, Hazardous Materials Laboratory Section

DICE 01672

EXHIBIT 2

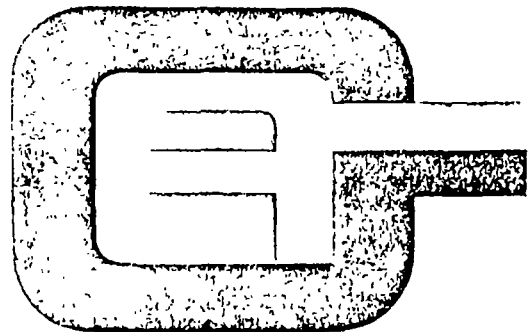
Compressed Gas Association  
Pamphlet on Carbide Lime Gen-  
eration, Its Value and Its Uses

DICE 01673

# **CARBIDE LIME ITS VALUE AND ITS USES**

*By-Product Calcium Hydrate from  
Acetylene Generation  
a Source of High Calcium Lime*

**COMPRESSED GAS  
ASSOCIATION, INC.  
NEW YORK, NEW YORK**



## CONTENTS

	Page
Introduction . . . . .	3
<del>Part I - Table of Potential Uses . . . . .</del>	<del>3</del>
Part II - Carbide Lime Technical Data and Availability . . . . .	4
<del>Part III - Uses in Chemical - Industrial Fields . . . . .</del>	<del>7</del>
<del>Part IV - Uses in Field of Water Softening, Sewage, and Acid Treatment . . . . .</del>	<del>8</del>
<del>Part V - Uses in the Building and Construction Fields . . . . .</del>	<del>8</del>
<del>Part VI - Uses in the Field of Agriculture . . . . .</del>	<del>10</del>
<del>Part VII - Uses as a Whitewash - as a Fire and Decay Retarder . . . . .</del>	<del>12</del>
<del>Part VIII - Miscellaneous Uses . . . . .</del>	<del>13</del>

## INTRODUCTION

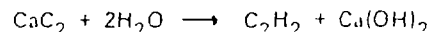
### Genesis of Carbide Lime

#### — The Calcium Carbide-Acetylene Process

Carbide lime is a by-product obtained in the generation of acetylene from calcium carbide. It is variously referred to as carbide sludge, generator slurry, lime sludge, lime hydrate, and other such designations. Carbide lime is better described as by-product calcium hydrate from acetylene generation, or simply, carbide lime.

By-product calcium hydrate is found wherever acetylene is produced from calcium carbide. The calcium carbide employed for the generation of acetylene is manufactured by the reduction of high quality lime by the carbon of selected cokes in the high temperatures of the carbide electric furnacing process. Production of acetylene ( $C_2H_2$ ) is accomplished by the reaction of calcium carbide with water ( $H_2O$ ) in properly designed acetylene generating equipment. In this process acetylene of the

highest purity is produced from the carbon (C) of the carbide and the hydrogen (H) of the water. The process also produces the subject carbide lime or by-product calcium hydrate ( $Ca(OH)_2$ ), the latter obtaining its calcium from the carbide and its hydroxide radical from the oxygen and hydrogen of the water. The chemical equation for this reaction is



Carbide lime is a potential top grade hydrated lime because of the high quality of the original raw materials of the process, and because of the very nature of the electric furnacing and acetylene generation steps through which the lime must pass.

By-product calcium hydrate from acetylene generation is a source of high calcium lime. Its economic and chemical usefulness is potentially comparable to that of commercial lime and hydrated lime in all fields of agriculture and farming, in building and construction, in industrial and chemical processes, and for numerous incidental purposes.

## PART I

### TABLE OF POTENTIAL USES

Lime and hydrated lime find use in many processes. In many instances carbide lime, or by-product hydrated lime, may be employed. The following table is suggestive of potential use or application. More detailed treatment of these applications is given in the text that follows:

FIELDS OF USES	FIELDS OF USES	FIELDS OF USES	FIELDS OF USES
<b>Farming</b> Soil-Conditioning Insecticide Fungicide Disinfectant  <b>Chemical</b> Waste Treatment Pharmaceuticals Strychnine Quinine <b>Organic Processes</b> Lactic Acid Citric Acid Ethylene Oxide Ethylene Glycol <b>Inorganic Processes</b> Caustic Soda Calcium Salts <b>Chlorinated-Hydrocarbons</b> Trichloroethylene Perchloroethylene <b>Bleaches</b>  <b>Building</b> Road Stabilization Sand-Lime Bricks Refractory Bricks Lime Mortar Lime Cement Concrete Waterproofing	<b>Paper</b> Waste Treatment Sulphite Process Sulphate Process Soda Process Rag Stock Strawboard De-inking Bleaching  <b>Ferrous Metals</b> Waste Treatment Manganese Concentration Wire Mill Cleaner Casting Mold Liner Ore Reduction  <b>Non-Ferrous Metals</b> Waste Treatment Magnesium Production Aluminum Production Cadmium Production Flotation Process Coating Cinder Pots  <b>Petroleum</b> Waste Treatment Emulsion Breaking Heavy Greases Catalytic Cracking Washing Gases	<b>Textile</b> Wool Degreasing Waste Treatment Bleaching Rayon Acid Waste  <b>Soap</b> Waste Treatment Calcium Stearate Glycerine Fatty Acids  <b>Sewage</b> Waste Treatment  <b>Water Softening</b> Lime Soda Process Lime Process  <b>Plastics</b> Waste Treatment  <b>Coal &amp; Coke</b> Mine Waste Treatment <b>Ammonia Recovery</b> Gas Purification Ammonia Still  <b>Paints</b> Water Paints Whitewash Varnish Casein Paints Linseed Oil	<b>Meat</b> Waste Treatment  <b>Canning</b> Waste Treatment Citric Acid Recovery  <b>Sugar</b> Waste Treatment Cane Refinery Beet Refinery  <b>Distilling</b> Waste Treatment Tartrate Recovery Yeast Production  <b>Tanning</b> Waste Treatment Hide Soaking Glue Gelatine  <b>Glass</b> Sand Washing Lime Glass  <b>Dairy</b> Waste Treatment



## PART II CARBIDE LIME TECHNICAL DATA AND AVAILABILITY

**Utility of Carbide Lime** One of the highest authorities on the subject of lime and its uses set forth the following observations on the subject, all of which has equal applicability to the utility of carbide lime

"The great utility of lime has not been generally known, and the general impression prevails that lime is merely a cheap building material that may be used in a few technical processes. It would lead to important economic betterments if the scientific, industrial, and business world realized that of all the nation's raw materials and manufactured products, none is more richly endowed than is lime with intrinsic merits and capacities for broad application to our industrial and farm life.

"Lime is much more than a building material. It is a chemical and a most versatile one. It is distinguished first of all by the large number of different functions that it will perform. In its construction uses, it performs at least nineteen different functions. In its chemical uses, the number is much larger, and there remain many others that may reasonably be expected to result from the systematic research and experimental work now being carried on in the matter of lime and its properties."

**Solids Content and Drying.** The generation of acetylene from calcium carbide, reacted with water in a "wet" generator, produces a slurry of calcium hydroxide (calcium hydrate). The usual solids concentration of the slurry from "wet generation" is from 10 to 12 per cent. It is possible to concentrate this slurry to about 30 or 40 per cent solids by decanting or by the use of a mechanical thickener and to between 45 to 55 per cent solids by prolonged pond settling. Commercial operations have demonstrated that the slurry can be concentrated satisfactorily through a range up to 60 per cent solids in a centrifuge. Experimental tests have indicated that drying of the 60 per cent solids material to a moisture content of from 1 to 3 per cent can be accomplished in a flash drier without excessive carbonate formation. Commercial operation has further demonstrated that 60 per cent solids hydrate can be calcined in a rotary kiln to produce a high quality calcium oxide of unusual reactivity, the product is inherently of extreme fine particle size and may be produced in either agglomerated or briquetted form.

The generation of acetylene from calcium carbide, reacted with limited quantities of water, in a "dry" generator produces a commercially dry calcium hydroxide of extreme fineness, high chemical quality, and essentially free of foreign coarse impurities. Commercially, "dry" generator product is limited as to availability because the production of acetylene and carbide lime is predominately via the "wet" generation process

Dilute or concentrated slurry can be dried effectively by mixing it with quicklime. The surplus water in the carbide lime slurry slakes the quicklime such that the per cent solids of the resultant mixture is appreciably increased even to the extent of achieving a commercially dry hydrate. This is accomplished in a process consisting essentially of a slurry tank with manually controlled discharge, a quicklime feeder, and a mixing tank or hydrator. The quicklime hydration develops considerable heat which acts to vaporize some of the water and the volatile impurities of the carbide lime. The resultant hydrated lime product is completely free from sulphide and objectionable odors and is amenable to further processing as to improvement or physical sizing, and hence is suitable for various end uses in the chemical, industrial, building, or agricultural fields

**Typical Chemical Composition.** The following is a typical chemical analysis of carbide lime as compared to commercial hydrate:

### CALCIUM HYDRATE ANALYSES (Dry Basis)

	Acetylene Generator By-Product Hydrate		Commercial Hydrate	
	From Generator	From Pond	Sample 1	Sample 2
Ca (OH) <sub>2</sub> . . . . .	96 50	92 22	96 44	92 40
Available CaO . . . . .	(73 00)	(69 80)	(72 50)	(69 90)
CaCO <sub>3</sub> . . . . .	1 25	2 82	1 76	3 80
SiO <sub>2</sub> . . . . .	1 10	1 46	0 81	1 30
R <sub>2</sub> O <sub>3</sub> (Al <sub>2</sub> O <sub>3</sub> , Fe <sub>2</sub> O <sub>3</sub> ) . . . . .	0 50	2 66	0 38	0 90
Mg (OH) <sub>2</sub> . . . . .	0 25	0 16	0 57	1 40
S . . . . .	0 15	0 17	0 03	0 10
P . . . . .	-	0 01	0 01	0 01
Free Carbon . . . . .	0 25	0 50	-	-

**Color, Odor, and Foreign Materials** It is to be recognized that carbide lime is a "by-product" as produced by the carbide-acetylene process, slight variations in chemical analysis and presence of alien matter will exist depending on local conditions at the point of production

The by-product hydrate has a grayish color and a characteristic acetylene odor as it comes from the generator, this odor passes away with time, but the grayish color results largely from the very small percentage of combined sulphur contained in the slurry. Also contained in the slurry are small amounts of ferrosilicon and carbon.

**Particle Size and Magnesium Content.** Carbide lime is extremely fine in particle size, comparable to and usually finer than most commercial hydrated limes. It has a number of advantages, such as

**1st Complete Hydration** That is freedom from unslaked lime, because it is made in many times its own weight of water, while ordinary hydrated lime is made with only a fraction of its own weight of water in order to avoid subsequent drying, which is inconvenient and expensive.

**2nd: Fine State of Sub-division or Fineness** In a published test of dried carbide lime, 99.9 per cent passed through a 300 mesh sieve, in another series of tests 92 to 98 per cent passed through a 325 mesh screen, while ordinary commercial hydrated lime does not show as good a percentage through a 200 mesh sieve. This extreme fineness is caused by the nature of its formation from calcium carbide. The acetylene on liberation has a tendency to crack or break open ordinary fine grains of lime into still finer particles. The heat and excess water in the generator also present ideal conditions for the production of very fine particles of hydrated lime. Conspicuous advantages of this fine state of sub-division are quicker and more efficient reactivity and the need for a smaller amount of carbide lime than is the case with ordinary hydrated lime. This finer sub-division is particularly valuable when carbide lime is used in the chemical, industrial, and construction fields of usage.

**3rd: Low Magnesium Content:** There is only a trace of magnesium present, because the lime originally used in making calcium carbide must be extremely low in magnesium. Low magnesium and high calcium are especially necessary in most chemical uses of lime, because the resulting magnesium products dissolve very readily in water, while calcium products are insoluble and can easily be removed by precipitation.

**4th: Price:** Users of hydrated lime can in many instances effect a saving of one-third to one-half of their present expenditure for lime, by arranging to secure carbide lime from a nearby acetylene generating plant. A very high grade of by-product hydrated lime can be purchased at attractively lower prices.

**Bulk Density vs. Per Cent Solids.** Following are typical weight ratio and density data of carbide lime at various per cents of solids content based on a specific gravity of solids of 2.14.

Solids Content %	Weight Ratio Lb. Carbide Lime per lb. available CaO	Density Lb. per gal.
10 .....	14.4	9.8
20 .....	7.3	9.3
30 .....	4.8	9.9
40 .....	3.6	10.6
50 .....	2.9	11.4
60 .....	2.4	12.3

**Per Cent Solids vs. Available CaO** The available calcium oxide content of carbide lime is often the gage by which its value or usefulness is measured. By product calcium hydrate has a higher available calcium oxide content than many high grade commercial hydrated limes. Following are typical data relating per cent solids of carbide lime per ton of available CaO.

Solids Content %	Gal Carbide Lime per Ton Available CaO
10 .....	3,300
20 .....	1,560
30 .....	960
40 .....	670
50 .....	510
60 .....	400

**Handling and Pumping.** Pumping of carbide lime has been demonstrated to be feasible in solids concentrations as high as 40 per cent. Carbide lime with a solids content in the range of 50 to 60 per cent is amenable to digging and truck hauling. Tank truck or car haulage of the lesser solids content slurries has been demonstrated satisfactorily.

**Handling and Transportation** Water slurries of carbide lime, containing up to 40 per cent solids by weight, are fluid enough to be pumped satisfactorily with standard type centrifugal pumps. At about 50 per cent or more solids content, the concentration reached by prolonged storage in pits or ponds, the consistency of the carbide lime is that of a fairly firm putty which can be handled effectively by digging with power shovels. Carbide lime in the intermediate 40 to 50 per cent solids content semi-fluid state can either be fluidized for pumping by adding water or be further concentrated to a putty firm enough for shovelling by continued settling and decanting of supernatant clear water.

The consistency of carbide lime can be readily altered to permit efficient handling. If the dilute slurry containing 10 to 12 per cent solids (which is obtained from wet type generators) is too dilute for economical shipment, or for intended end use, it can be thickened by settling and decanting or draining off the surplus water. Generator installations in industrial plants are commonly provided with subsurface settling pits or elevated tanks equipped with clear water decanting facilities to accomplish this thickening. In the case of settled carbide lime, addition of water and positive agitation is required to develop a slurry of uniform density. This agitation can be accomplished with a submerged jet of compressed air, steam or high pressure water applied through pipes or nozzles in fixed position, or by manual application of portable equipment. Mechanical means such as

manually operated hoes and power driven rotating paddles can also be used effectively.

Carbide lime, of the plastic putty-like consistency developed after prolonged settling in storage pits or ponds, is firm enough for clean handling by power operated shovels of the clam shell or dipper type, or by scrapers or scoops operated from drag lines. This material can be transported in hopper body trucks which are sufficiently water tight to prevent leakage to the roadway, by river barge, and by rail in hopper cars of the type used for transporting cement in bulk. Rail shipment in open hopper or gondola cars is also feasible if a temporary cover is provided to prevent loss by leakage of slurry which might be developed by exposure to rain or snow in transit.

Fresh generated slurry is most economically utilized closest to the point of production, reduction of moisture content by one of several methods is progressively more essential economically, prior to hauling to points of usage, to reduce the gross volume per unit of solids.

**Fineness vs. Settling.** In spite of the fineness of carbide lime particle size, the solids of a slurry are generally many times faster settling than the solids of a water-lime mixture made directly from burned lime. This difficulty may be overcome in most cases by utilizing a surge tank with agitator. If this latter method should prove inadequate under certain process conditions the difficulty may be overcome by grinding the wet slurry in a colloid mill. When so treated, it is known that the slurry can be held in tank storage for a week or more without appreciable settling, and in addition is less apt to clog valves or lines of a pumping system.

**Processing of Carbide Lime for the Manufacture of Brick and Hydrated Lime.** A prominent producer of gas products in Hawaii has reported successful utilization of the by-product carbide lime of his carbide acetylene generation operations. This enterprising producer has equipped his operations with process equipment which enables him to recover approximately one ton of hydrated lime for each ton of calcium carbide consumed by the acetylene generator. With this equipment full utilization of the available by-product carbide lime is accomplished in two different ways; first and oldest, to supply lime for the manufacture of sand-lime brick; second in the manufacture of hydrated lime.

Sludge from the drain pit of the acetylene generator is pumped over a 1/8 in. mesh screen to remove coarse particles and thence runs by gravity to the feed ring of a 15 ft. diameter by 8 ft. deep Dorr thickener. Here it is thickened from an original concentration of about 10 per cent solids to one of 40 per cent solids, the clear overflow going to waste.

*For the manufacture of brick, the thickened slurry*

is pumped to a 3 ft. by 4 ft. Oliver vacuum filter. The resulting cake contains about 55 per cent solids. The filtrate is returned to the Dorr thickener. It is usually clear, but sometimes an old cloth will develop holes and give a cloudy filtrate. A 1 1/2 in. Oliver diaphragm slurry pump is used to feed the filter. The thickened cake falls near the brick mixing pan and is shoveled into the pan as required.

*For the manufacture of hydrated lime, thickened sludge not required for brick manufacture is pumped into a 232 cu. ft. trailer tank and hauled to the lime plant. Here it is pumped into a 9 ft. diameter by 8 ft. deep agitated storage tank. A Carter Humdinger plunger pump is used to empty the trailer and also to pump the sludge from storage to the hydrator slurry feed tank. Here it is mixed with water from the hydrator Schneible wet dust collecting system and fed to a Kuntz continuous hydrator. Here it is mixed in proper proportions with crushed quicklime from the lime kilns. The hydration or slaking reaction develops quite a lot of heat, so that it is necessary to supply about twice as much water as is theoretically required. The excess boils off and thus removes the extra heat and the vapor carries with it odorous impurities in the sludge. Hydration temperature should be between 215 and 250 deg. F. for best results. Quicklime is fed by a star feeder and slurry feed is adjusted annually to get the proper operating temperature.*

The dry crude hydrate discharged from the hydrator is elevated and dumped into a surge bin. From here it is fed by an automatic load controller to a No. 1 Raymond swing hammer mill with double whizzer separator. The coarse impurities are discharged and conveyed by a vacuum pneumatic conveyor to a storage bin. This product is sold for agricultural lime. The purified hydrate, 99+ per cent through 200 mesh and about 70 per cent CaO, is separated from the mill air stream by a cyclone collector and a set of filter bags. These discharge into the finished lime storage bin. The product is bagged in 50 lb. bags as chemical hydrate lime by a 2-spout Bates packer, or is loaded into bulk shipping tanks for local customers.

While the sludge is rather low in sugar soluble lime, total CaO is quite high. Its use in quantities up to 10 per cent of the product, dry basis, does not seem to impair product quality. No sulphide can be detected in the finished lime, and it does not have any sludge odor, even when it is acidified and boiled.

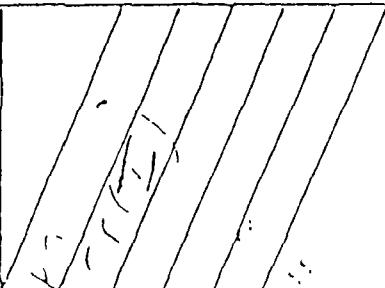
**Availability of Carbide Lime.** Carbide lime, a top grade by-product calcium hydrate equivalent in many characteristics to top grade commercial hydrated lime, is available throughout industrial and farming areas — wherever calcium carbide is generated for production of acetylene. Classified sections of local telephone directories generally list producers or sales agents of "Acetylene" who would normally be in a position to advise where carbide lime would be available.

EXHIBIT 3

Chain - Of - Custody Documentation

Proj. No.		Project Name		No. of containers		Remarks									
Samplers: (Signature)															
Sta. No.	Date	Time	Comp.	Grub	Station Location										
S1	6/4			✓	Comp. pit side										
S2	"			✓	" " "										
S3	"			✓	" " "										
S4	"			✓	" " "										
S5	"			✓	" " "										
S6	"			✓	" " "										
S7	"			✓	" " "										
S8	"			✓	" " "										
Relinquished by: (Signature)			Date/Time		Received by: (Signature)			Relinquished by: (Signature)			Date/Time		Received by: (Signature)		
Relinquished by: (Signature)			Date/Time		Received by: (Signature)			Relinquished by: (Signature)			Date/Time		Received by: (Signature)		
Relinquished by: (Signature)			Date/Time		Received for Laboratory by: (Signature)			Date/Time			Remarks				

**DICE 01681**

Proj. No.		Project Name				No. of con- tainers											Remarks
2172		Ligand Air Corp - Lynette															
Samplers: (Signature) Gene Fitzhugh																	
Sta. No.	Date	Time	Comp.	Grab	Station Location												
1.1	6/11			✓	Ligand Pt - Lynette												
1.2	"			✓	"											2172/11/11	
1.3	"			✓	"												
1.4	"			✓	"												
Relinquished by: (Signature)			Date/Time		Received by: (Signature)			Relinquished by: (Signature)			Date/Time		Received by: (Signature)				
Relinquished by: (Signature)			Date/Time		Received by: (Signature)			Relinquished by: (Signature)			Date/Time		Received by: (Signature)				
Relinquished by: (Signature)			Date/Time		Received for Laboratory by: (Signature)			Date/Time		Remarks							
Gene Fitzhugh			6/11 2:15		Loan McKee			6/18 2:25 pm									

DICE 01682

**Kennedy/Jenks Consultants**

**APPENDIX C**

**CERCLA SITE INSPECTION  
2 AUGUST 1989**

**DICE 01683**

PURPOSE: CERCLA SITE INSPECTION

SITE: Burdett Oxygen Company of California (CKA Liquid Air Corporation)  
8832-8838 South Dice Road  
Santa Fe Springs, CA 90670

EPA ID #: CAD 982359747

ASPIS #: 19-28-0224

INVESTIGATORS: Wendell Francisco  
Hazardous Materials Specialist  
Susan White  
Hazardous Materials Specialist

Date of Inspection: February 17, 1989

Report Prepared By: Wendell Francisco

Report Date: June, 1989



## TABLE OF CONTENTS

<u>SECTION</u>		Page
1.0	INTRODUCTION.....	5
2.0	SITE CHARACTERIZATION	
	2.1 Site History and Description.....	5
	2.2 Process Description.....	7
	2.3 Waste Management Practices.....	8
	2.4 Permits.....	9
	2.5 Remedial Action.....	9
3.0	ENVIRONMENTAL AND SETTING.....	9
	3.1 Surrounding Area.....	9
	3.2 Geology.....	10
	3.3 Hydrology.....	11
	3.3.1 Surface Water.....	11
	3.3.2 Groundwater.....	11
4.0	SUMMARY OF INVESTIGATIVE EFFORTS.....	12
	4.1 Previous Activities By Other Agencies/ Responsible Party.....	12
	4.1.1. Discussion and Evaluation of Previous Sampling/Testing Results.....	13
	4.2 DHS Site Inspection.....	16
	4.2.1 DHS Activities.....	16
5.0	HRS FACTORS.....	16
6.0	RECOMMENDATIONS AND CONCLUSIONS.....	17
7.0	REFERENCES.....	19
 <u>Appendices</u>		
A.	Figures.....	22
B.	Contact Log and Reports.....	34
C.	Photo Documentation.....	36
D.	Previous Sampling/Testing Documents.....	50

LIST OF TABLES

<u>TABLE</u>		<u>PAGE</u>
1	Report of Analytical Results for Solid Slurry Pit: S(1-8)	14
2	Report of Analytical Results for Solid Slurry Pit: S(1-8)	14
3	Report of Analytical Results for Liquid Slurry Pit: L(1-4)	15

APPENDIX A

	LIST OF FIGURES	<u>PAGE</u>
1.	Site Location Map, U.S.G.S. Topographic Map, Whittier.....	23
	Quadrangle.	
2.	Existing Site Plan, Liquid Air, 8832-8838 Dice Road.....	24,25
3.	Proximal Land USE, Burdett Oxygen Company.....	26,27
4.	Ecology and Environment: 1 year-24 hour Map .....	28
5.	DWR, Bulletin 104, Generalized Stratigraphic Column, Coastal Plain of Los Angeles County.....	29
6.	DWR, Bulletin 104, Idealized Geologic Section A-A'-A" and B-B'....	30
7.	Department of Water Resources: Location of wells.....	31
8.	Dates and locations of collected samples, Liquid Air Corporation, Santa Fe Springs, CA.....	13
9.	Sampling Location; Solid Lime Pit, Liquid Air Corp.....	32
10.	Sampling Location, Liquid Lime Pit, Liquid Air Corp.....	33

1.0 INTRODUCTION:

The Burdett Oxygen Company (AKA Liquid Air Corporation) currently produces acetylene and repackages gases including carbon dioxide, hydrogen, helium, nitrogen, dinitrogen oxide, oxygen, propane and fuel gas for medicinal and industrial use. The facility has been in operation in Santa Fe Springs since 1946. Historical investigations of the site have revealed releases of waste products to the environment by facility operators. On-site disposal of process wastes to unlined pits has occurred. Poor waste disposal and handling practices have also been noted. Waste parameters including pH as high as 12.4, possible high toxicity and persistence, and potential carcinogenicity have been cited (1). The purpose of this report is to summarize previous investigations and make recommendations for further actions.

2.0 SITE CHARACTERIZATION:

2.1 SITE HISTORY AND DESCRIPTION:

Burdett Oxygen Company (BOC) is owned and operated by Liquid Air Corporation, 2121 N. California Blvd., Walnut Creek, CA (2). In 1957, the facility was called Burdett Oxygen of California. In 1962, the facility operated as California Oxygen Company, and by 1964 was known as the California Oxygen Division of American Cryogenics, Inc. (3,4). In 1971, the facility was known as the American Cryogenics Division of Liquid Air Inc. In 1980, the air separation plant was acquired by M.G. Burdett Gas Products Company. The entire facility is currently owned by the operator, Liquid Air Corporation (LAC) (1,2,5,6).

BOC is located at 8832-8838 Dice Road, Santa Fe Springs, CA in northeastern Los Angeles County (7) (Figure 1, Site Location Map: T2S,R11W, Section 31). The site is situated on level terrain on a parcel of 4 1/2 to 5 acres. The facility has been in operation for approximately 31 years in a primarily industrial area of Santa Fe Springs.

The site configuration has changed considerably over the 31 years of operation. The present facility configuration (Figure 2) shows the facility structures and two unlined quarry pits. Structures on-site include: an administrative office, an industrial gas-cylinder fill building, a garage, an acetylene plant, a hydrogen gas plant and an air separation (Alpha gas) plant. The air separation plant and the hydrogen plant are located at the southwest end of the site. The administrative office and the industrial gas-cylinder fill building are located on the north end of the facility. The garage and acetylene plant are centrally located. The two unlined quarry pits are located on the east end of the site between two Southern Pacific

Railroad spurs (2).

The site is located approximately 1 mile east of the San Gabriel Freeway. The facility is now completely paved except for the area surrounding the quarry pits. The site is enclosed by a fence with a security guard at the front gate. The Southern Pacific Railroad extends along the southern boundary of the facility.

From 1949 to 1955, periodic inspections by the Los Angeles County Department of the County Engineer (LACE), indicated that BOC was in compliance with the requirement of an industrial waste permit under Los Angeles County Ordinance 6130 (LAC Ord. 6130) (8). Waste sludge from acetylene production and coolant water were discharged under this permit to the unlined quarry pit or pits (8,9). In 1962, LACE inspectors observed an indirect waste trap that resulted in the deposit of caustic effluent into an earthen pit at the facility. The LACE inspectors ordered a direct connection of the effluent to the unlined quarry pit(s). A representative sample of the caustic effluent measured pH 12.4 (10). In 1963, it was discovered that liquid waste from cleaning and cooling tower basin was discharged into the unlined drainage channel, located south of the formerly standing cooling tower. No further actions were recommended by LACE. In 1949 and 1964, LACE inspectors discovered a violation of LAC Ordinance 6130, consisting of a caustic waste spill on the ground surface. A clean-up order was issued in 1964 (11). In 1964, LACE inspectors ordered company officials to discontinue unpermitted discharge of caustic wastes to the public sewer system (12).

In 1976, representatives of the California Regional Water Quality Control Board, Region 4 (RWQCB) reported illegal discharges of acetylene production wastes and cooling tower water to an unlined drainage channel known as North Fork Coyote Creek, for which clean-up orders were issued (13,14,15). Analysis of the process effluent revealed a measured pH of 12.2 and total dissolved solids concentrations (TDS) of 3,220 mg/l (1). As a result, in 1977, RWQCB ordered Liquid Air to comply with waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES). Effluent limits under the NPDES permit included pH 6.0-9.0 and maximum TDS of 700 mg/l (1). Later in the same year, the RWQCB documented excessive quantities of acetylene process wastes deposited in the drainage channel in violation of permit requirements (16). The NPDES permit was allowed to expire by RWQCB with the understanding that no further discharge of indicated wastes to surface waters would be conducted (17,18). In 1981, a facility drive-by conducted by DHS representatives confirmed the presence of acetylene (quarry) sludge ponds containing liquid wastes on site (19). In 1982, the facility was referred to DHS for consideration by the enforcement unit (19,20).

In 1986, it was revealed that a 6200 gallon underground acetone storage tank was leaking at a rate of 0.1566 gal/hr from the facility (21,22,23). The allowable leak rate is 0.05 gal/hour (24,25). A letter of noncompliance regarding the leaking acetone tank was issued by the Department of Public Works Waste Management Division Los Angeles County (25).

In February, 1988, it was revealed that ten or more piles of white to gray waste material were sitting on the unpaved ground surface along the southern border of the waste pit area. In March, 1988, a Santa Fe Fire Department inspection revealed the storage of twenty to thirty 55 gallon drums containing oil, paint, and other wastes near the waste pits (26,27). These drums were relocated to a properly paved storage area and segregated according to compatibility (2). As of July 21, 1989, DHS received a letter from Liquid Air Corporation stating that the 55 gallon drums containing oil, paint and other waste have been properly disposed of or recycled (28).

The facility is currently under permit as Alpha Gas by the South Coast Air Quality Management District (SCAQMD). The SCAQMD has no record of any enforcement action taken at the facility (29).

## 2.2 Process Description:

The company manufactures acetylene and repackages gases including carbon dioxide, hydrogen, nitrogen, dinitrogen, oxygen, propane and fuel gas for medicinal and industrial uses. The acetylene manufacturing process uses the reaction of calcium carbide stock with water to produce acetylene and slaked lime as shown below:

$$\text{CaC}_2 + 2\text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{C}_2\text{H}_2 \text{ (gas)} \dots \text{typically with a variety of trace impurities (30,31).}$$

The company excavated two pits, estimated at 500,000 cubic feet in volume, to accumulate sludge by-product, principally slaked lime (8,9). The gas repackaging process consists of vaporizing liquid gases, then repumping and compressing the gases into cylinders (2). Some liquid gases are repackaged and shipped as liquid product while others are vaporized and pumped into cylinders for transport as vaporized gas. There are no by-products produced from the vaporization process (2).

Cylinders containing the following gases are currently produced at the BOC site: oxygen, nitrogen, argon, helium, carbon dioxide, compressed air, acetylene, hydrogen, propane, and speciality gas-mixtures (2,32).

In 1946, the acetylene manufacturing plant was established. In 1957, an air separation plant for the production of oxygen was installed. In 1971, the acetylene plant was reconstructed due to its destruction

by fire in the previous year (33). In 1980, the air separation or liquid plant was closed and has remained inoperative to the present day (2,5).

In the Industrial Gas-Cylinder Fill building oxygen, nitrogen, argon, helium, carbon dioxide, compressed air and hydrogen are transferred from large (truck tankers) to smaller cylinders (2). In the Acetylene plant, acetylene, produced in a controlled reaction of calcium carbide and water, is stored under pressure in cylinders and the lime by-product is hauled away by sub contractors. One 55 gallon drum of sulfuric acid per year is used to clean the piping in the acetylene manufacturing plant. In the garage 200-400 gallons of oil per year is used for trucks and compressors. In the maintenance building, one 55 gallon drum of III trichloroethane per year is used for cleaning pipes on the oxygen tanks used by hospitals and also as a cleaning solvent for engine parts (2).

### 2.3. Waste Management Practices:

No waste products are produced in the Industrial Gas-Cylinder Fill plant, since the process is principally transferring gas from one container to another. In the Acetylene plant, slaked lime ( $\text{Ca(OH)}_2$ ) is produced as a liquid-sludge waste product. The lime is daily deposited in two large 500,000 cubic feet unlined slurry pits. Slaked lime is produced at BOC at a rate of 92 tons of dry lime per month. Approximately 55 gallons of spent liquid sulfuric acid is generated per year from the Acetylene plant. About 200-400 gallons of spent motor oil is generated per year from the company garage. Approximately 55 gallons of spent III Trichloroethane is generated per year from the maintenance building (2).

A tractor is used to transport lime sludge from the quarry pits to an adjacent milling machine. After the lime has been milled, it is hauled away by large trucks. Spent sulfuric acid, waste oil, and TCE are all stored in an enclosed, paved area in the former air separation plant located on the west side of the facility. Drums are grouped based on chemical characteristics. ENSCO Environmental Services of Irvine has been contracted to haul drummed waste products (2).

There are four above ground storage tanks located southeast of the plant office. Liquid argon, nitrogen and oxygen are separately stored in the three above ground storage tanks. All three tanks are sitting on the paved ground surface and have been in use since 1980. In the Industrial Gas Cylinder Filling area, water is constantly dripping over the valves of the cylinders being filled. This is a safety measure to assure that a spark that may produce a chain reaction of explosions does not occur (2).

In 1976, the RWQCB, Region 4 issued clean up orders for the illegal discharges of acetylene production wastes and cooling water to the North Fork Coyote Creek, an unlined drainage channel (13,14,15). Analysis of the process waste effluent revealed a measured pH of 12.2 and total dissolved solids concentration of 3,320 mg/l (1). Later in the same year, RWQCB documented excessive quantities of acetylene process waste deposited in the drainage channel in violation of permit requirements (16). BOC eventually allowed the National Pollutant Discharge Elimination System (NPDES) permit to expire and begin discharging acetylene process and cooling waters into two large onsite unlined pits (17,18,19). The lime pits are located on the east portion of the BOC site. The acetylene waste water is pumped from the Acetylene plant through a rubber hose out to the lime pits. The pits appear to be greater than 50 feet deep and there is an opaque-green liquid standing on the bottom of the two pits. A floor drainage system collects acetylene process run-off and pumps it out to the lime pits (2).

#### 2.4. Permit:

BOC is not listed in the RCRA data base. In 1977, the RWQCB ordered BOC to comply with waste discharge under the National Pollutant Discharge Elimination System (NPDES). Effluent limits under the NPDES permit included pH 6.0-9.0 and maximum TDS of 700 mg/l (1). In 1976, BOC was not in compliance with the NPDES permit. The NPDES permit was allowed to expire by the RWQCB with the understanding that there would be no further discharges of the indicated wastes to nearby surface waters (17,18). BOC no longer discharged to U.S. Waters, but instead directed effluent to the slurry pits at the east of the facility (19,20). Currently, BOC does not discharge process waste by-products to the sewer.

#### 2.5. Remedial Action:

BOC was ordered by the RWQCB to clean-up the North Fork Coyote Creek, an unlined drainage channel. There is an ongoing removal of lime sludge from the the acetylene slurry pits on-site. This lime is milled and hauled away to be used on roads and agricultural fields.

#### 3.0. Environmental Setting:

##### 3.1. Surrounding Area:

The BOC site is situated on the Santa Fe Springs Plain in the northeast portion of the Los Angeles Coastal Plain. The Santa Fe



Springs plain is a low, slightly rolling topographic feature that has been shaped by the Santa Fe Springs Coyote Hills anticlinal system. The plain dips moderately to the northeast toward Whittier and to the southwest towards the Downey Plain. Total elevation difference ranges from 175 to 200 feet above sea level (34).

The San Gabriel River Channel is located 1 mile west of the site and a percolation basin is located less than 3 miles northwest of the site. The Sorenson Avenue storm drain, located 1/4 mile northeast of the site, is tributary to Coyote Creek which is located approximately 3 miles southeast of the site (Figure 1).

The surrounding population of the City of Santa Fe Springs is 15,000. Distance to Southern California Chemical Company which has the nearest off site building is less than 500 feet west of the site. Witco Organics Company is less than 1,000 feet northwest of the site. An unpaved lot is located less than 200 ft. southwest of the facility on the east side of the Dice Rd. (Figure 3). There are no sensitive environments within the site vicinity such as wetlands, nature preserves, or critical habitats.

One year, 24-hour rainfall for the area is 2 inches (Figure 4). Net seasonal precipitation is -.30 inches (35). Local streams are intermittent due to the seasonal nature of the climate.

### 3.2. Geology:

The site is located on Upper Pleistocene alluvium of the Lakewood Formation. The Lakewood Formation unconformably overlies the Lower Pleistocene San Pedro Formation, the Pleistocene Pico, the Repette, and Miocene Puente formations (34). Underlying the site are the Lakewood and San Pedro formations which are fresh water bearing units containing Hollydale, Jefferson, Silverado, and Sunnyside Aquifers at increasing depth (1,34,36).

The site is located on the surface exposure of the Bellflower aquiclude, a low permeability layer of the Lakewood Formation. The aquitard, which is 15 - 20 feet thick, consists of gravelly clays, silts, silty clays, and sandy clays (34,37). The lower portion of the Lakewood Formation is the Gage Aquifer which is composed of fine to medium sands approximately 20 feet thick (Figure 5 and 6). Soil borings taken at a nearby facility (Southern California Chemical Company) indicate the base of the Gage Aquifer is located at a depth of 30 feet, however it is dry beneath the nearby site (34,37). The San Pedro Formation unconformably underlies the Lakewood Formation and its uppermost layer is an aquitard comprised of clayey silts and silty clays. It is 5 to 30 feet thick, according to nearby site boring logs, and separates the Gage from the Hollydale aquifer (38).

The Hollydale Aquifer is encountered at a depth of 60 feet below the site surface to approximately 100 feet (34,37). Regional groundwater flow is towards the south to southwest (36,37).

### 3.3. Hydrology:

#### 3.3.1. Surface Water:

Drainage off of the site flows to the Sorenson Avenue storm drain, a concrete lined channel located 1/4 mile northeast of the facility. The storm drain is tributary to Coyote Creek which is located 3 miles to the southeast. The San Gabriel River is located 1 mile to the west and the San Gabriel percolation basin is located further upstream. The Rio Hondo River and percolation basin are located approximately 3 miles northwest of the site (see Figure 1).

#### 3.3.2. Groundwater:

The site is located on a surface exposure of the Bellflower Aquiclude, a low permeability portion of the Lakewood Formation, a late pleistocene alluvial formation approximately 20-25 feet thick in the vicinity location (34,37). Boring logs for monitoring wells in the vicinity of the site reveal 10-15 foot thickness of the Bellflower Aquiclude which is comprised mainly of clays (37,38). The unsaturated zone is comprised of gravelly clay, silty clay and clay with a permeability or hydraulic conductivity of  $10^{-5}$  to  $10^{-7}$  cm/sec and less (37,38,39).

The Gage Aquifer is found 5-15 feet beneath the aquiclude and is 15-30 feet thick beneath the site and consists of sands and is comprised of clays and lies beneath the site surface at a depth of 30 to 60 feet (38). The Lynwood Aquifer lies beneath the San Pedro aquiclude and beneath the site at a depth of 200 feet and extends for 80 feet. The Silverado aquifer lies beneath the site at 300 feet and extends 200 feet in thickness. The Sunnyside aquifer is found at a depth of 560 feet below the surface at depth of approximately 850 feet. The Gage, Hollydale, Jefferson, and Lynwood aquifers are hydrologically interconnected within 3 miles of the site. The Silverado and Sunnyside aquifers are not hydrologically interconnected within a 3 mile radius of the site (Figure 6). General regional groundwater flow in the area is south to southwest (37).

Depth to groundwater in the Central Basin of the Los Angeles Plain occurs at 30 to 35 feet depth to the Gage Aquifer beneath the surface (37). Depth to groundwater beneath the site is approximately 42 feet (34).

A hydrogeologic assessment conducted in the vicinity of the site, indicated that a confined aquifer exists beneath the site at a depth from 42 to 45 feet. Low permeability soils were encountered 10 feet below the ground surface. A second low permeability zone was encountered approximately 25 feet below the surface (38,39,40).

The area is served by several water purveyors within a 1 mile radius of the site. The San Gabriel Valley Water Co., has 2 active wells at State well location 2S/11W-18Q, Plant 1. The wells reach depths of 530 to 552 feet and are perforated at several depths in several of the local aquifers. These two active wells serve The Community of Whittier, California at a population of 17,000 people (41). The City of Norwalk Public Works operates one well within a 3 mile radius of the site and the population served is 7734. It is state well no. 3 s/11W-18M02 and is 1002 feet in total depth. The well is perforated in the Jefferson and Lynwood aquifers (42). The City of Santa Fe Springs Water Department operates State well no, 25/11W-30RS that is located at the Santa Fe Springs Fire Station, 1180 feet north of the site. It is the nearest well to the site and is used for municipal supply (43). The well is 900 feet in depth and is perforated in the Lynwood, Silverado, and Sunnyside aquifers (42,43). The population served by municipal wells within a 1-mile radius of the site is 15,067 (41,42). There are over 50 wells within a 3-mile radius of the site (Figure 7).

~~Depth to the aquifer of concern for the site is 200 feet to the Lynwood Aquifer which extends 80 feet (Figure 6). Wells used for municipal supply located within a 1 mile radius of the site indicate perforations within these depths (41,42,43). The Gage Aquifer is dry within the vicinity of the site, however a perched groundwater condition was discovered at 42 feet beneath the site (37).~~ Depth to aquifer of concern is 42 feet due to aquifer interconne

4.0. SUMMARY OF INVESTIGATIVE EFFORTS:

4.1. Previous Activities By Other Agencies/Responsible Party:

Sampling by DHS was not conducted by BOC. Ralph Stone and Company (RSC) on June 24, 1987 obtained samples for the waste classification of waste produced by Liquid Air Corporation. The RSC report was submitted to the RWQCB and was also to satisfy all requirements of the TOXIC PITS Clean-up Act (TPCA) of 1984 (44).

The objective of this sampling effort was to determine if the lime pits were hazardous or non hazardous. Based on the sampling protocol, laboratory test results, chain of custody documentation and sampling locations, the BOC site lime pits were found to be non hazardous (44).

#### 4.1.1 Discussion and Evaluation of Previous Sampling/Testing Results:

Previous sampling has been performed at the facility by RSC, Inc. There are currently two pits used by Liquid Air Corp. Since each pit is filled with fresh, hot liquid lime, allowed to solidify, then excavated, a composite sample from one pit should represent both pits. There is no variation of raw material being fed into the acetylene generator, therefore there should be no variation of the chemical constituents in each of the lime pits. One lime pit contains liquid lime while the other pit contains solid lime. Eight samples were taken from the solid lime pit (S1 thru S8) and four samples were taken from the liquid lime pit (L1 thru L4) (Figure 8).

Figure 8: Dates and Locations of Collected Samples.

<u>Type of Sample Collected</u>	<u>Sample Location</u>	<u>Date Collected</u>	<u>Field Sample</u>
Grab samples	Solid lime pit	6/4/87	S1 thru S8
Grab samples	Liquid lime pit	6/4/87	L1 thru L4

In the solid pit, grab samples were taken using clean equipment and samples jars. The equipment was cleaned after each sample with distilled water. In the liquid pit, a glass jar was attached to twenty feet of PVC pipe. Samples were scooped into the jar and poured into a clean glass sample jar. The jar attached to the PVC pipe was cleaned after each sample was taken. Collected samples were stored in an ice chest. Each sample was properly labeled and the caps were secured with electrical tape. Upon completion of sampling, samples were promptly delivered to the testing laboratory in an ice chest sealed with chain of custody tape. The laboratory was instructed to place samples in a refrigerator (44).

Sample locations for each respective lime pit are available on figure 9 and 10. Results of analysis performed on samples are found in Table 1, 2, and 3.

TABLE 1

## Report of Analytical Results for Solid Slurry Pit.

<u>Log No.</u>	<u>Sample Description, Soil Samples</u>	<u>Date Sampled</u>
06-086-1	Comp. S(1-8)	04 Jun 87
06-086-2	S1	04 Jun 87
06-086-3	S2	04 Jun 87
06-086-4	S3	04 Jun 87
06-086-5	S4	04 Jun 87

<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>
Selenium, mg/kg	<0.4	—	—	—	—
Silver, mg/kg	3.4	—	—	—	—
Thallium, mg/kg	<5	—	—	—	—
Vanadium, mg/kg	17	—	—	—	—
Zinc, mg/kg	2.0	—	—	—	—
Nitric Acid Digestion Date	5/11/87	—	—	—	—

TABLE 2

## Report of Analytical Results for Solid Slurry Pit.

<u>Log No.</u>	<u>Sample Description, Soil Samples</u>	<u>Date Sampled</u>
06-086-1	Composite S(1-8)	04 Jun 87
06-086-2	S1	04 Jun 87
06-086-3	S2	04 Jun 87
06-086-4	S3	04 Jun 87
06-086-5	S4	04 Jun 87

<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>
RCRA Reactivity Requirements					
Cyanide Generation, mg/kg	<10	—	—	—	—
Reactivity with H2O/ Acid/Base, mg/kg	NR	—	—	—	—
Sulfide Generation, mg/kg	<1	—	—	—	—

<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>
CN Amenable to chlorination					
Cyanide, Total, mg/kg	UTD	—	—	—	—
CN amenable to chlorination, mg/kg	UTD	—	—	—	—
Hexavalent Chromium, mg/kg	<5	—	—	—	—
Sulfide, mg/kg	43	—	—	—	—
pH, Units	11.9	—	—	—	—
Sample Held, Not Analyzed					
Fluoride, mg/kg	<1	—	—	—	—
Antimony, mg/kg	<8	—	—	—	—
Arsenid, mg/kg	0.6	—	—	—	—
Barium, mg/kg	13	—	—	—	—
Beryllium, mg/kg	0.09	—	—	—	—
Cadmium, mg/kg	<0.5	—	—	—	—
Chromium, mg/kg	1	—	—	—	—
Cobalt, mg/kg	<1	—	—	—	—
Copper, mg/kg	2.9	—	—	—	—
Lead, mg/kg	<5	—	—	—	—
Molybdenum, mg/kg	<5	—	—	—	—
Nickel	11	—	—	—	—

TABLE 3

## Report of Analytical Results for Liquid Slurry Pit.

<u>Log No.</u>	<u>Sample Description, Soil Samples</u>	<u>DATE SAMPLED</u>
06-086-1	Composite L(1-4)	04 Jun 87
06-086-2	L1	04 Jun 87
06-086-3	L2	04 Jun 87
06-086-4	L3	04 Jun 87
06-086-5	L4	04 Jun 87

<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>
Hexavalent Chromium, mg/kg	<5	—	—	—	—
pH, Units	11.9	—	—	—	—
Sample Held, Not Analyzed	—	—	—	—	—

Further results for analysis performed on samples are found in Appendix D. Generally, no hazardous constituents were found during the analytical analysis of the sample from the BOC lime pits (44).

Soil sampling was performed by Bruce Glasberg, R.E.A. of Ralph Stone and Company, Inc. The samples were taken to Brown & Caldwell Laboratories for analysis. Results of samples submitted to the laboratory indicate that the lime pits are non hazardous. No parameter was found to exceed state standards (44).

4.2. DHS Site Inspection:

4.2.1. DHS Activities:

A CERCLA site inspection was conducted on February 17, 1989 for the purpose of gaining the most recent information regarding the site processes, waste management practices, and site layout and condition of acetylene sludge pits. The site investigation does not include sampling as previous sampling of the acetylene sludge pits has indicated that the pits are non-hazardous. For purposes of this site investigation-only a site reconnaissance visit was performed.

5.0. HRS FACTORS:

There is no documented evidence which supports an observed release to groundwater, surface water or air from Burdett Oxygen Corporation site.

Fire and Explosion:

It has been documented that in 1971, the acetylene plant was reconstructed due to its destruction by fire in the previous year (33).

Direct Contact:

There is no record of direct contact or exposure with the public. The facility is well secured, fenced and guarded.

Waste Type:

Yearly wastes generated on-site consist of 55 gallons of spent sulfuric acid, 55 gallons of TCE, 200-400 gallons of spent motor oil and 1104 tons of dry lime (2). Waste sulfuric acid, oil, and TCE are all stored in an enclosed, paved area in the former air

separation plant to the west of the facility. Drums are grouped based on chemical characteristics. ENSCO Environmental Services of Irvine has been contracted to haul away drums (2). The slaked lime (calcium hydroxide) is deposited in two lime pits (125 ft. x 80 ft. x 50 ft. deep and 125 ft. x 80 ft. x 50 ft. deep) (44).

Sulfuric acid is a colorless, oily liquid which is extremely irritating, corrosive and toxic to tissue. TCE is an organic solvent about that decomposes and emits toxic fumes of Cl- when heated. Slake lime or sodium hydroxide consists of colorless crystals can cause dermatitis and irritation to eyes and mucus membranes upon contact for sodium hyphoxide dust (45).

*Waste quantity only includes hazardous substances with a non-zero containment score. Dry lime doesn't count since it is non hazardous. TCE, sulfuric acid probably don't*  
Waste Quantity: Yearly, 55 gallons of sulfuric acid and TCE are generated by the facility. 200-400 gallons of spent oil and 1104 tons of dry lime is generated by BOC on a yearly basis (2).  
*count since they are stored in intact drums.*

Groundwater:

Soil boring logs from monitoring wells drilled in the vicinity of BOC show a depth to water of about 42 to 45 feet and indicate that the Gage Aquifer is dry in the vicinity of the site (38). Screened intervals for other monitoring wells in the area are approximately 45 to 75 feet below the surface. ~~The aquifer of concern for the site vicinity is the Lynwood Aquifer, found at a depth of 200 feet beneath the ground surface (38). Several municipal wells located within a 1-mile radius of the site are perforated in this aquifer (41,42,43).~~

The City of Santa Fe Springs Water Department operates State well no, 25/11W-30RS that is located at the Santa Fe Springs Fire Station, 1180 feet north of the site. It is the nearest well to the site and is used for municipal supply (43). The well is 900 feet in depth and is perforated in the Lynwood, Silverado, and Sunnyside aquifers (42,43). The population served by municipal wells within a 1-mile radius of the site is 15,067 (41,42). There are over 50 wells within a 3-mile radius of the site (Figure 9).

Surface Water:

Surface water bodies located within a 3 mile radius of the site are not used for municipal, irrigation, or recreational uses. The San Gabriel River, located 1 mile west of the facility is a flood control channel. Drainage off site flows to the Sorenson Avenue Drain, located 1/4 mile northeast of the site. Facility slope is nearby level and it does not appear that surface runoff from the site would affect surface water bodies except via the Sorenson Avenue storm drain.



6.0. RECOMMENDATIONS AND CONCLUSIONS:

Burdett Oxygen Company CKA Liquid Air Corporation located at 8838 Dice road, Santa Fe Springs, CA has operated an acetylene manufacturing plant, and a repackaging of industrial and medicinal gas operation using such gases as CO<sub>2</sub>, H<sub>2</sub>, He, N<sub>2</sub>, N<sub>2</sub>O, O<sub>2</sub>, propane, and fuel gas. The BOC site has been in operation since 1957.

Samples were taken from the two slurry pits at the site to determine whether hazardous substances were being stored in them. Ralph Stone and Company, Inc. conducted the sampling effort which revealed that the slurry pits at the BOC were non-hazardous.

It is therefore unlikely that this site will be eligible to be listed on the NPL due to a lack of documented on-site hazardous waste.

EPA: No further Remedial Action Planned Under CERCLA based on a low potential to quality for the NPL.

DHS: No further Remedial Action recommended for the state since waste constituents in the facility sludge ponds are considered non-hazardous.

7.0 References

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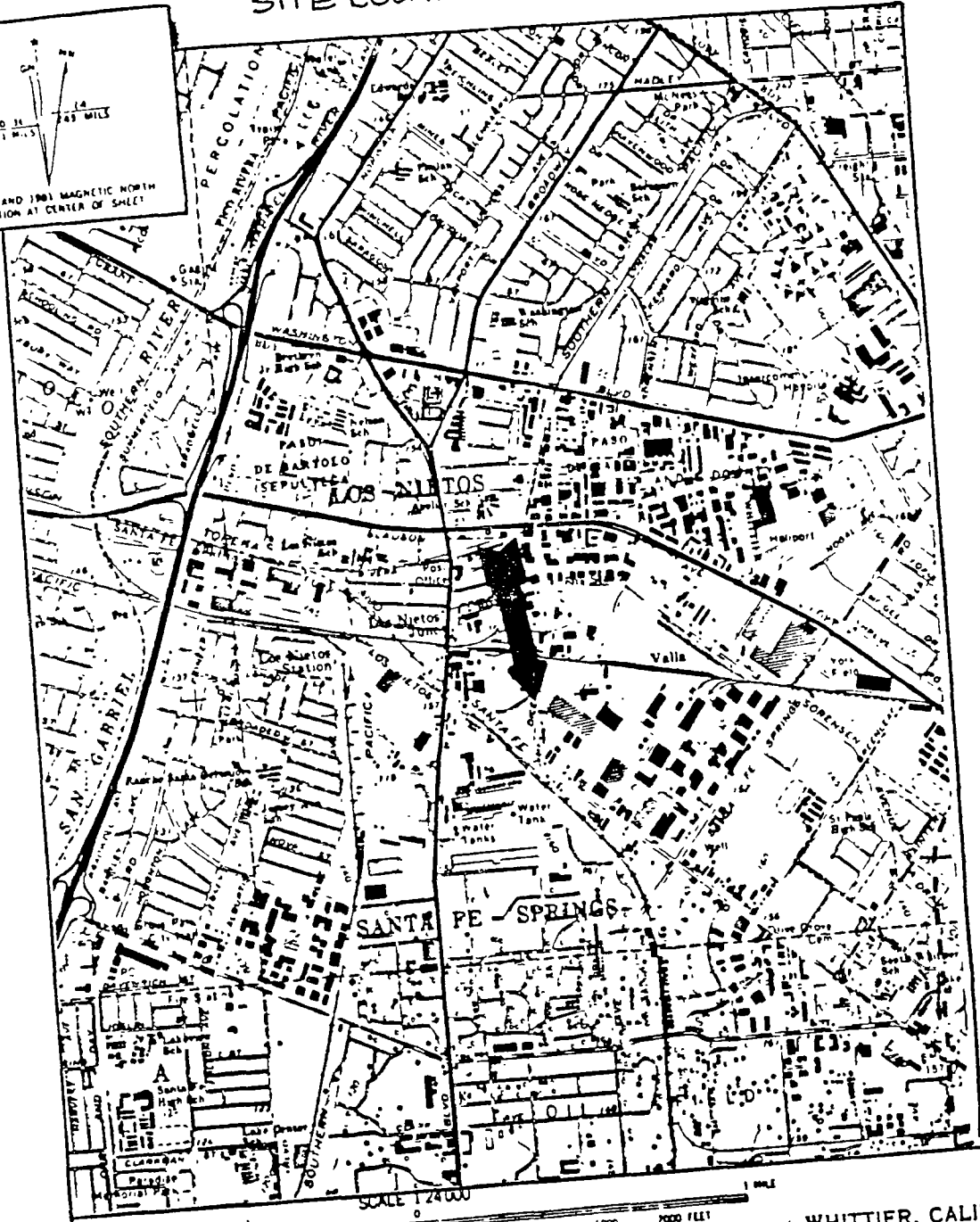
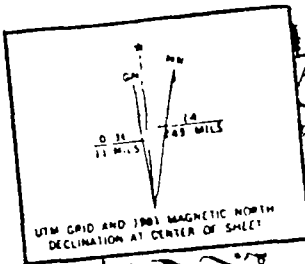
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pg 22

22

FIGURES

# SITE LOCATION MAP



CONTOUR INTERVAL 20 FEET  
 DOTTED LINES REPRESENT 5-FOOT CONTOURS  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

WHITTIER, CALIF  
 N3352 5-W11800/7.5  
 1965  
 PHOTOREVISED 1981  
 DMA 23511 NE-SERIES V80:

LIQUID AIR CORPORATION  
 (BURDET OXYGEN)  
 8832-8838 DICE RD.  
 SANTA FE SPRINGS, CA 90670

DICE 01706

FIGURE 1

1374 21 5-1-3  
BURDETT

50 CAL CHEM CO.

DICE RD.

SOUTHERN

BURDETT

FACILITY SITE PLAN

FIGURE 2

FIELD(?)  
VITCO CHEMICAL

①  
PLANT OFFICE

INDUSTRIAL GAS FILL  
② CYLINDER FILLING DOCK

trucks/cylinders

USE SAME GASES (same process) specific gases

PAVED AREA

③  
GARAGE

④  
NETHYLENE PLANT

trucks

ALPHA GAS

WAREHOUSE  
⑦ HOUSE MAINTENANCE

⑥  
AIR SEPARATION PLANT

SUMP

⑤  
H<sub>2</sub> PLANT  
FILLS, COMPRESSOR, RECTIFIER, FILLING AREA

Acetic Acid  
Muriatic Acid

Hydrogen building

NO WASTES  
PISA 1004

0000  
CUSTOMER TANKS

SLURRY PITS

Slurry present at bottom of pits approx depth?

SLURRY PITS

UNPAVED AREA

C<sub>3</sub>H<sub>8</sub>

RR TRACKS

PIGMENT APPEARS PETERIORATED STAINING NOT EVIDENT

METAL FABRICATOR

RR SPUR

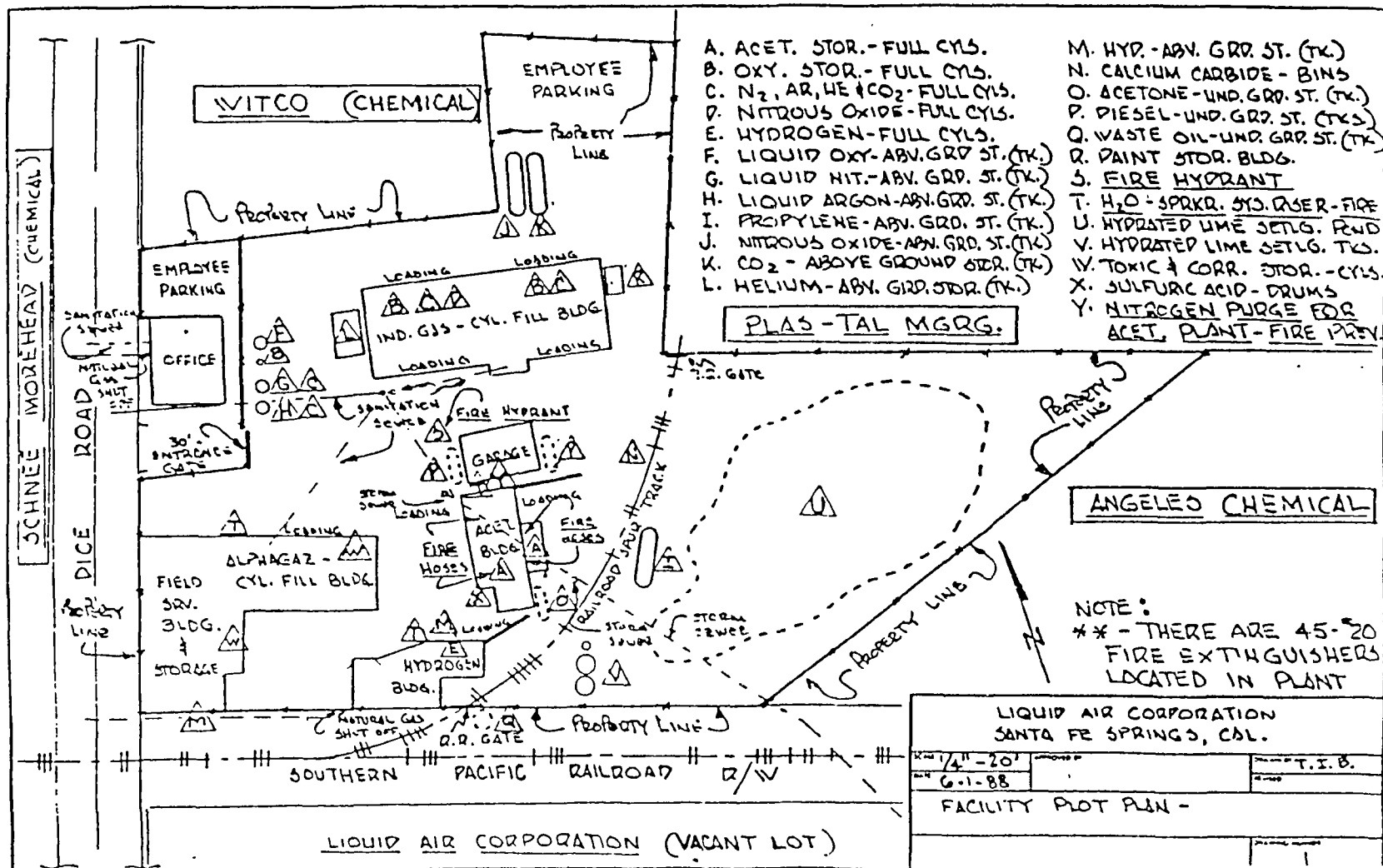
ANG CHEI

DRAINAGE DITCH

LIQUID AIR PROPERTY  
(LEASING)  
TO GROWER  
CROP FIELD

INDUSTRY  
LMCKESSON

DICE 01707





ATTACHMENT 1  
SITE TRACKING SHEET

Site Name: Burdett Oxygen Company California

Site Location: 8832 - 8838 South Dice Road

Santa Fe Springs, CA 90670

ASPIS Facility File Number: 19-28-0224

Site Screening PA SI X

Site Summary: SEE SITE INVESTIGATION

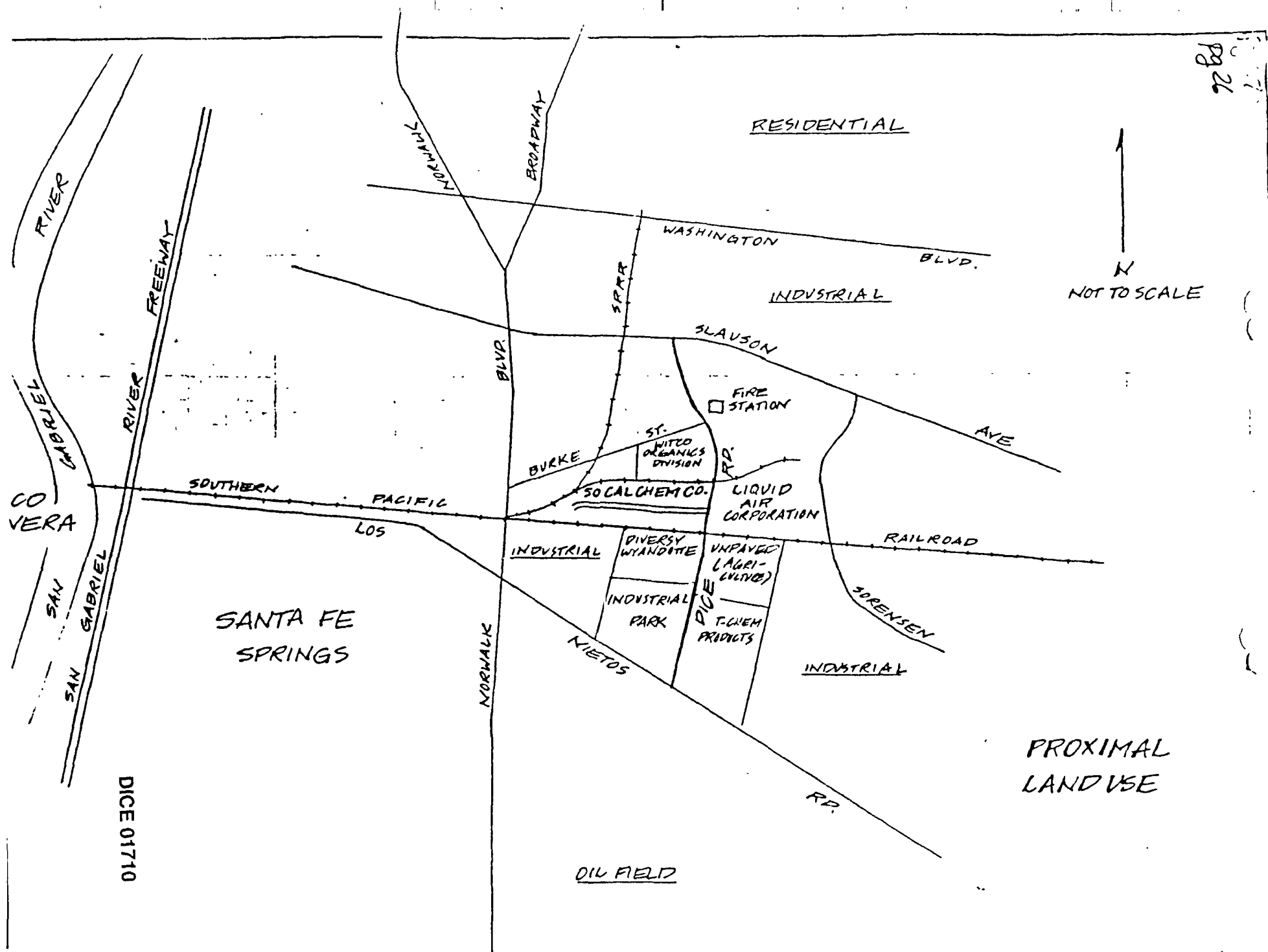
Recommendation: NO FURTHER ACTION

Rationale/Supporting Documentation: SAMPLING PREVIOUSLY  
CONDUCTED FOUND THE LIME SLURRY PITS TO  
BE NON-HAZARDOUS

Supervisor: \_\_\_\_\_ Preparer: WENDELL FRANCISCO

Hours Spent: 400 Date: 8/02/89  
ASP 001 I-7  
11/86

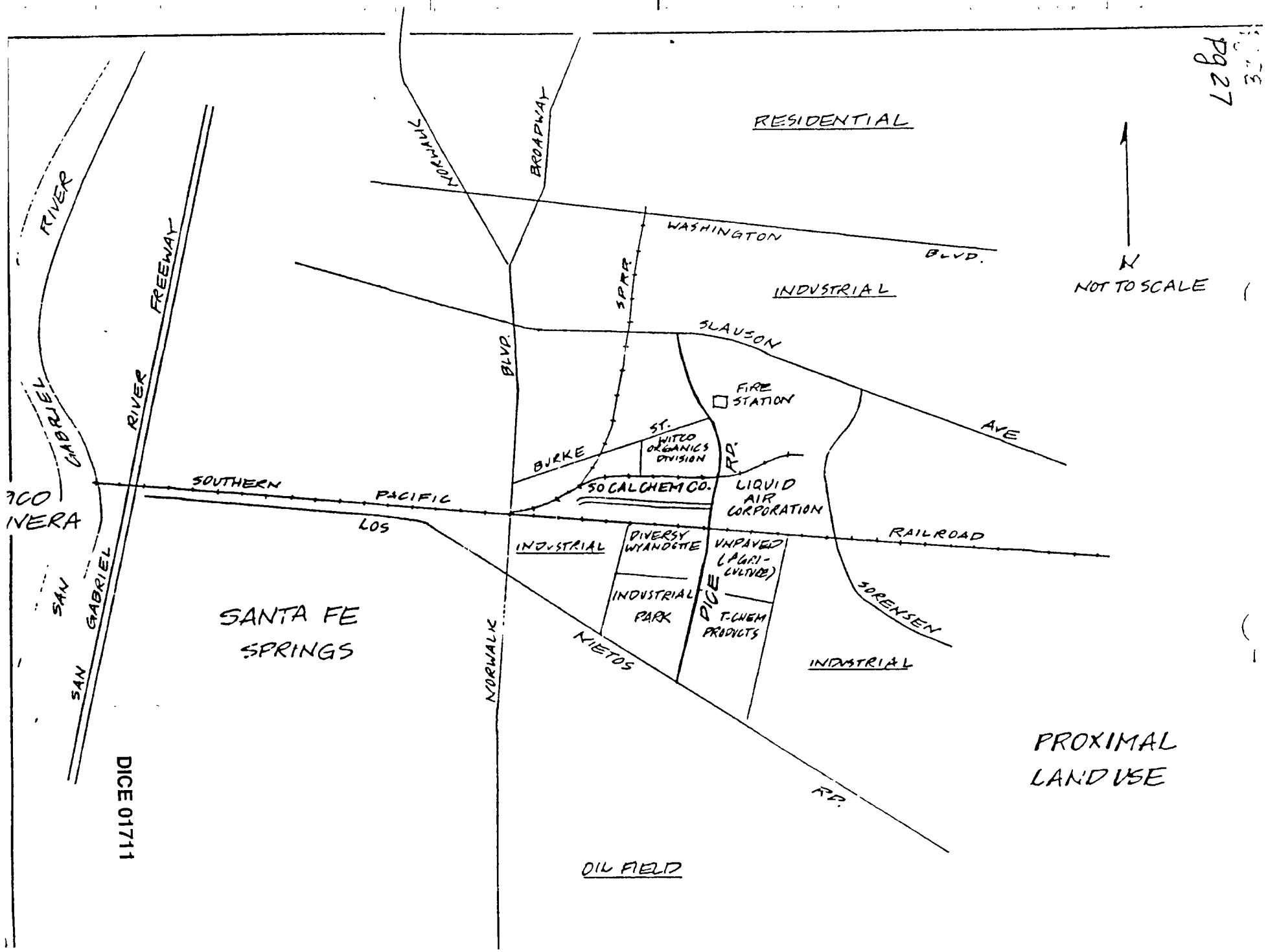
DICE 01709



DICE 01710

PROXIMAL  
LAND USE

OIL FIELD



PROXIMAL  
LAND USE

OIL FIELD

DICE 01711

SANTA FE  
SPRINGS

RESIDENTIAL

INDUSTRIAL

INDUSTRIAL

WASHINGTON  
BLVD.

SLAU-SON  
AVE

FIRE  
STATION

ST.  
WITCO  
ORGANICS  
DIVISION

SOCALCHEM CO.

LIQUID  
AIR  
CORPORATION

INDUSTRIAL

DIVERSY  
WYANDOTTE

INDUSTRIAL  
PARK

UNPAVED  
(AGRI-  
CULTURE)

DICE  
T-CHEM  
PRODUCTS

RAILROAD

SORENSEN  
AVE

RR.

BLVD.

SPR

BROADWAY

NORWALK

RIVER  
FREEWAY

RIVER

SOUTHERN

PACIFIC

LOS

NORWALK

RIVER

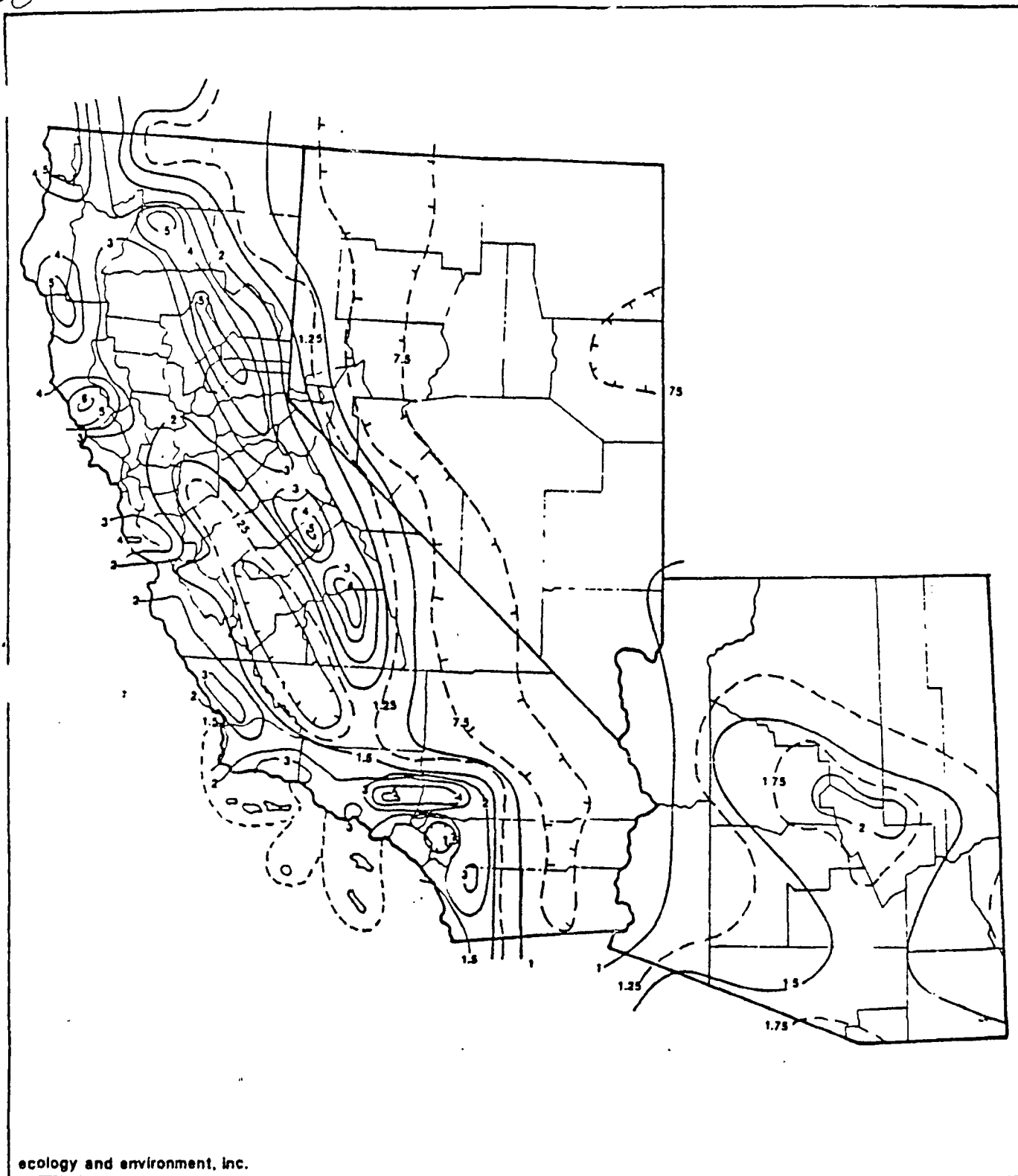
GABRIEL

700  
VERA

SAN

SAN

GABRIEL



1 YEAR - 24-HOUR

DICE 01712

FIGURE 4

6284

SYSTEM	SERIES	FORMATION	LITHOLOGY	AQUIFER AND AQUICLUDE	MAX THICKNESS (FEET)	PREVIOUS FORMATION NAMES*	PREVIOUS AQUIFER NAMES*
QUATERNARY	RECENT	ACTIVE DUNE SAND		SEMI-PERCHED	80	ALLUVIUM	SEMI-PERCHED <sup>†</sup>
		ALLUVIUM		BELLFLOWER AQUICLUDE	140		GASPUR <sup>†</sup> "30 FOOT GRAVEL"
	UPPER PLEISTOCENE	OLDER DUNE SAND		SEMI-PERCHED BELLFLOWER AQUICLUDE	40	TERRACE COVER	SEMI-PERCHED <sup>†</sup>
		LAKEWOOD FORMATION		EXPOSITION ARTESIA	200	PALOS VERDES SAND	
				GARDENA	140	UNNAMED UPPER PLEISTOCENE	GARDENA <sup>†</sup> "200 FOOT SAND"
				GAGE	180	LOCAL UNCONFORMITY	
	LOWER PLEISTOCENE	UNCONFORMITY		HOLLYDALE	100	SAN	
		SAN		JEFFERSON	140		
				LYNWOOD	200		"400 FOOT GRAVEL"
				SILVERADO	500	PEDRO	SILVERADO <sup>†</sup>
				SUNNYSIDE	500	FORMATION	
TERTIARY	UPPER PLIOCENE	LOCAL		UNCONFORMITY		PICO FORMATION	
		PICO FORMATION		UNDIFFERENTIATED			

LEGEND OF LITHOLOGY

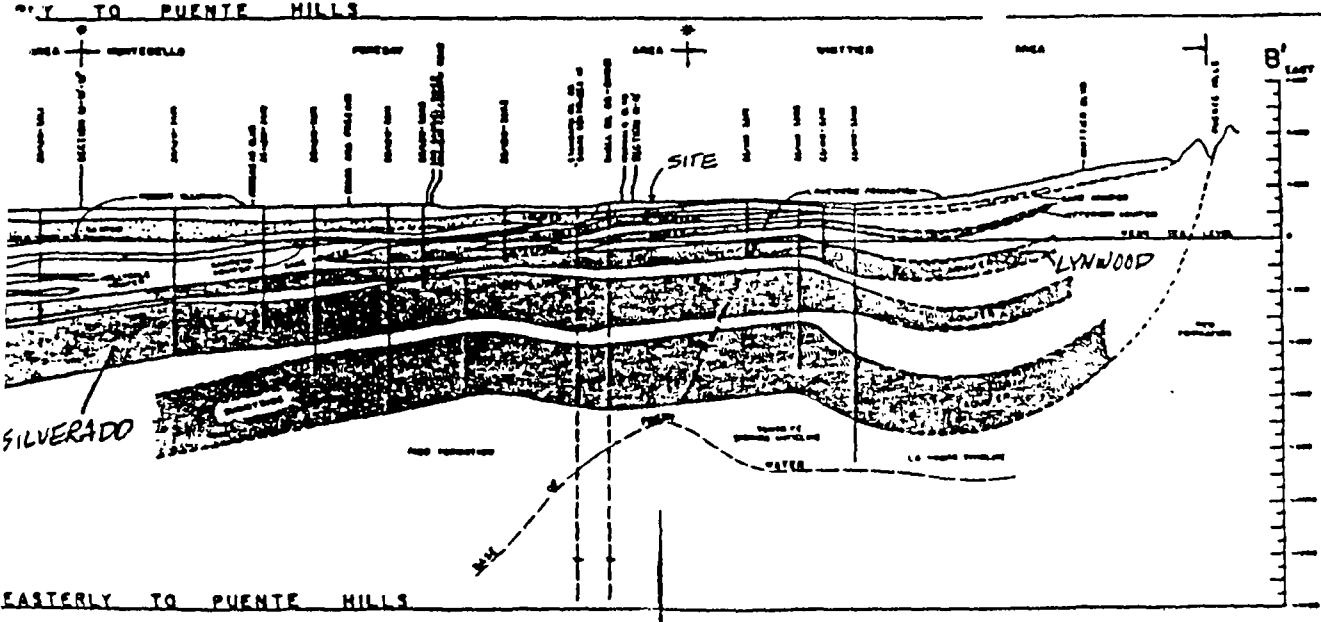
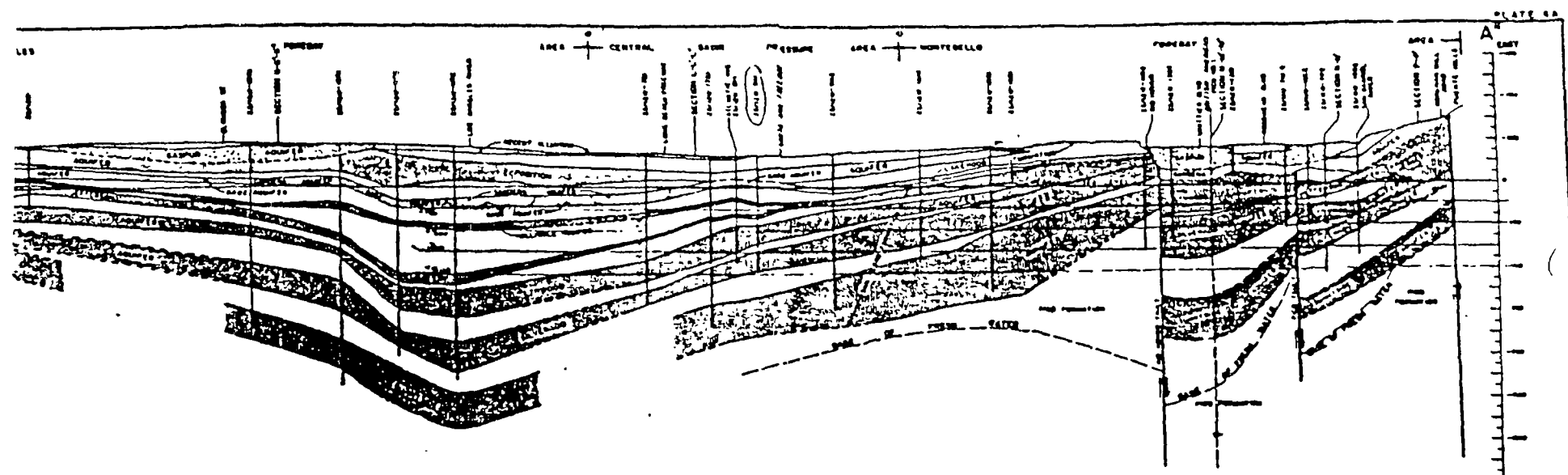
- GRAVEL AND SAND
- SILTY OR SANDY CLAY
- CLAY OR SHALE

\* DESIGNATIONS AND TERMS UTILIZED  
"REPORT OF REFEREE" DATED JUN  
PREPARED BY THE STATE ENGINEER  
COVERING THE WEST COAST BASIN  
  
† DESIGNATED AS "WATER BEARING"  
IN ABOVE NOTED REPORT OF REF.

GENERALIZED STRATIGRAPHIC COLUMN  
COASTAL PLAIN OF LOS ANGELES COUNTY

DICE 01713

1930  
7/31



**LEGEND**

- Unconsolidated and highly indurated formations
- Consolidated formations including the Puente Hills and Montebello formations
- Consolidated formations including the Puente Hills, Montebello, and San Gabriel formations
- Consolidated formations including the Puente Hills, Montebello, San Gabriel, and San Joaquin formations
- Water wells
- Oil wells
- Faults

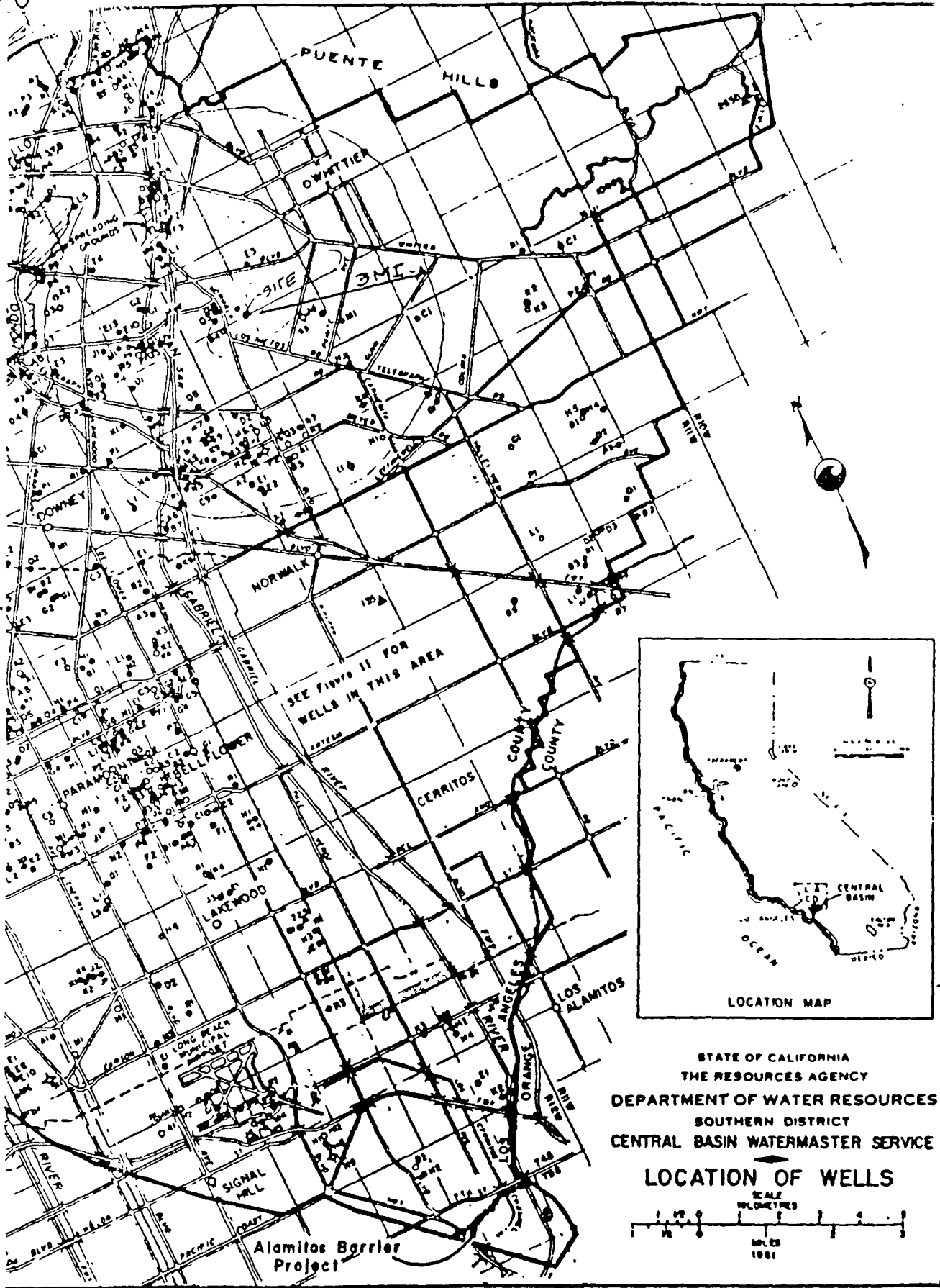
© COPYRIGHT BY THE STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES  
DIVISION OF GROUND WATER

**GROUND WATER GEOLOGY OF THE  
COASTAL PLAIN OF  
LOS ANGELES COUNTY**

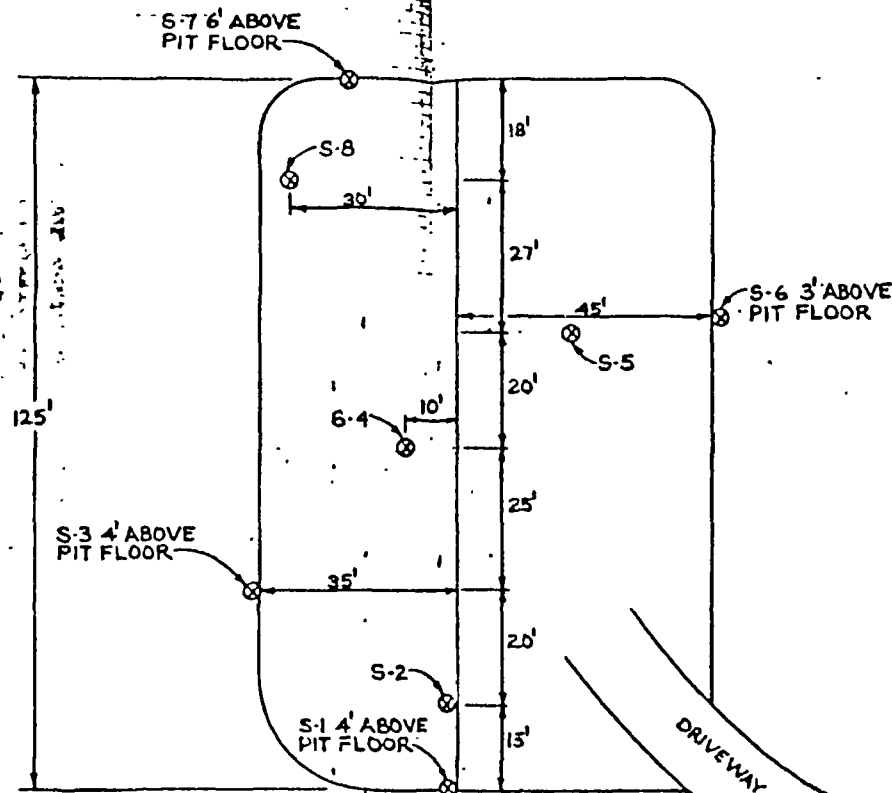
**IDEALIZED GEOLOGIC SECTIONS  
A-A'-A" AND B-B'**

VERTICAL SCALE OF FEET

DICE 01714



DICE 01716



SAMPLING LOCATIONS  
SOLID LIME PIT  
SCALE: 1" = 20'

**RALPH STONE AND COMPANY, INC.**  
10054 SANTA MONICA BOULEVARD LOS ANGELES CALIFORNIA 90025  
478-1501  
879-1115

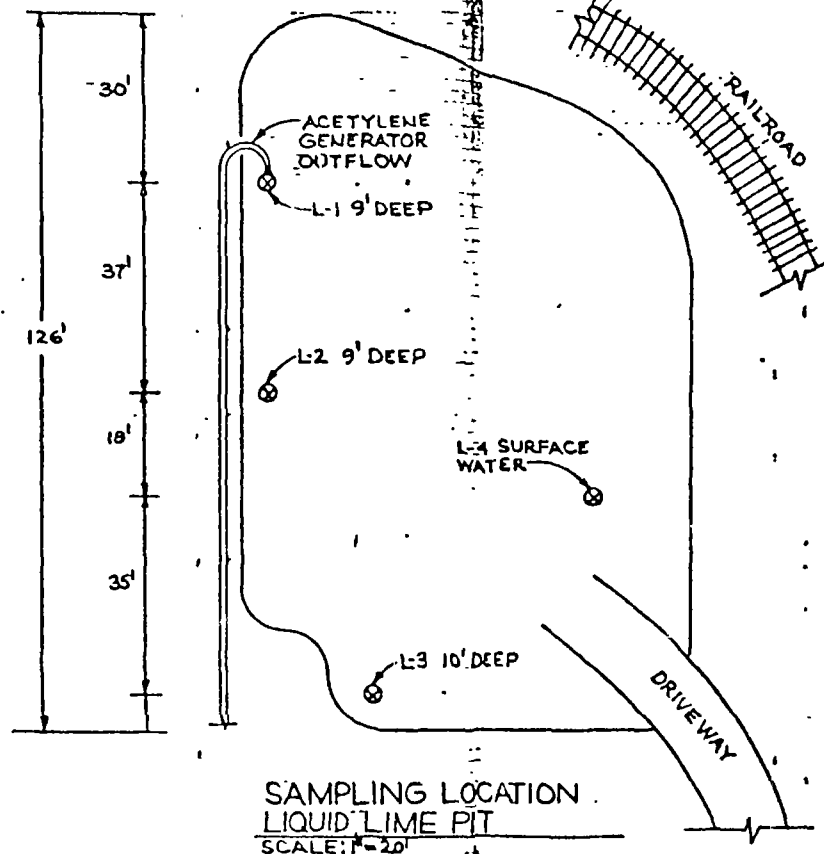
LIQUID AIR CORPORATION  
INDUSTRIAL GASES CORPORATION  
8832 DICE ROAD  
SANTA FE SPRINGS, CA. 90670

SAMPLING LOCATION  
SOLID LIME PIT

BY E.H.J.	NO 2142	DATE 6/22/87	D-1
CH	SCALE 1" = 20'		
APP			



DICE 01717



SAMPLING LOCATION  
LIQUID LIME PIT  
SCALE: 1" = 20'

**RALPH STONE AND COMPANY, INC.**  
478 - 1501  
879 - 1715  
4055 SOUTH MONICA BOULEVARD LOS ANGELES CALIFORNIA 90008

LIQUID AIR CORPORATION  
INDUSTRIAL GASES CORPORATION  
8832 DICE ROAD  
SANTA FE SPRINGS, CA. 90670

SAMPLING LOCATION  
LIQUID LIME PIT

BY E.H.J.	NO. 2142	DATE 6/22/87
SCALE 1" = 20'		

D-2

pg 34

APPENDIX B  
CONTACT LOG AND REPORTS

DICE 01718

AGENCY CONTACT RECORD

Site Name: Burdett Oxygen Corporation Preparer Name: 19-28-0224

Facility File Number: \_\_\_\_\_

[illegible]

pg 36

APPENDIX C  
PHOTO DOCUMENTATION

DICE 01720

DATE 2-17-89TIME 1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

(E) ESE SE SSE

S SSW SW WSW

W WNW NW NNW

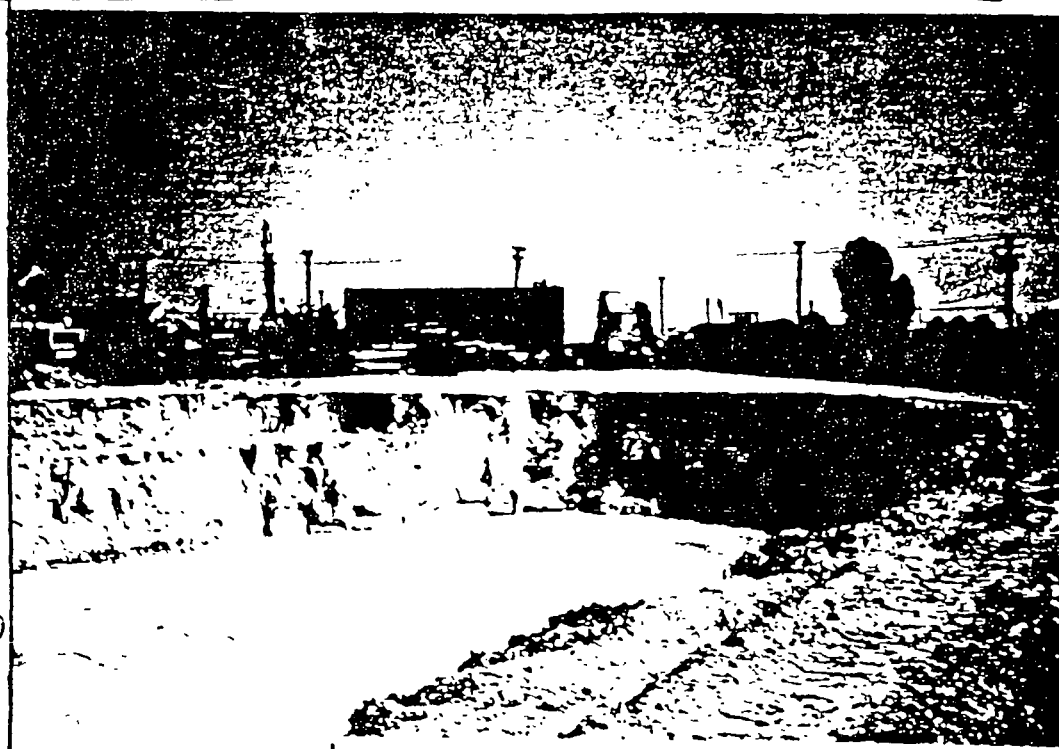
WEATHER ClearSITE Burdett

TODAY

PHOTOGRAPHED BY:

W. Francisco

MAPLE 106' (if applicable)

DESCRIPTION: Lime Slurry Pit.DATE 2-17-89TIME 1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

(E) ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER ClearSITE Burdett

TODAY

PHOTOGRAPHED BY:

W. Francisco

MAPLE 106' (if applicable)

DESCRIPTION: Lime Slurry Pit.

DICE 01721

DATE 2-17-89TIME 1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER

Clear

SITE

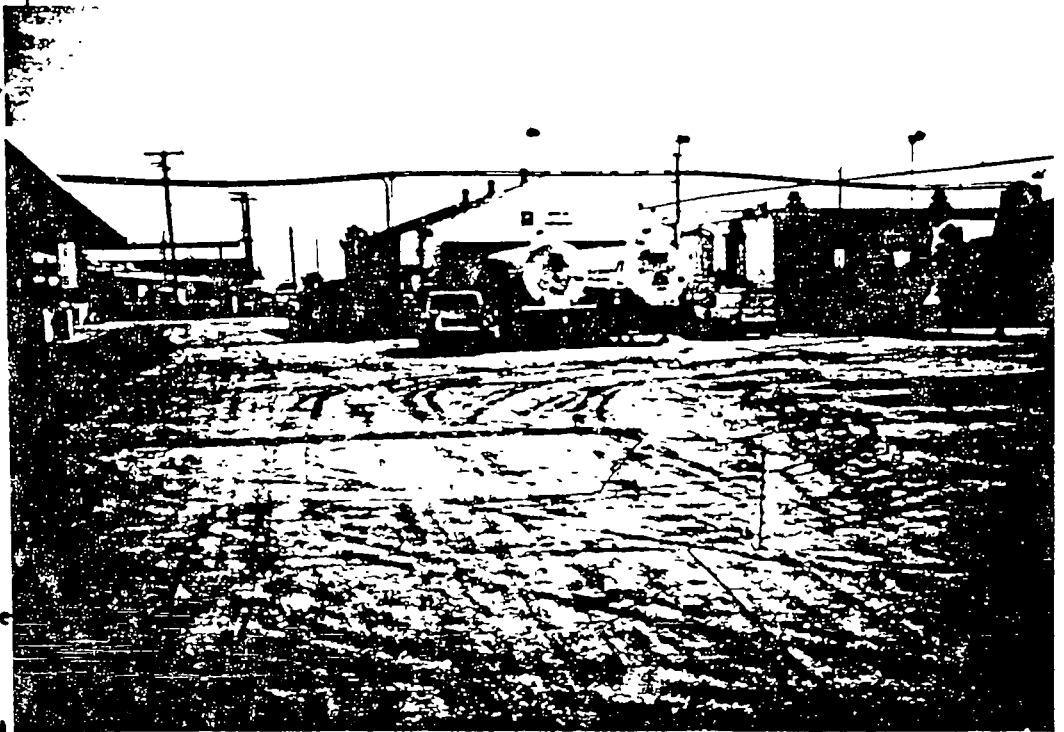
Burdett

TODD

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DESCRIPTION:

Paved area of Burdett oxygen

DATE

2-17-89

TIME

1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER

Clear

SITE

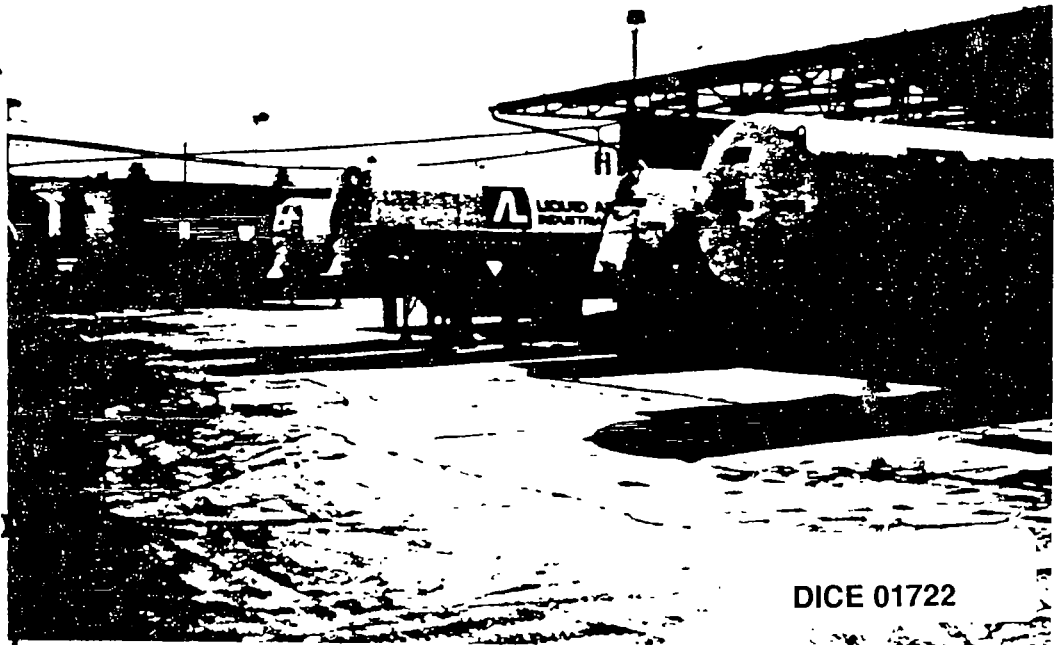
Burdett

TODD

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DICE 01722

DESCRIPTION:

Paved area of Burdett oxygen

331

DATE 2-17-89

TIME 1 A.M. P.M.

DIRECTION: (N) NNE NE ENE

E ESE SE SSE

S SSW SW WSW

V VNW NW NNW

ATHER Clear

TE Burdett

DDU#

OTOGRAPHED BY: W. Francisco

AMPLE ID# (if applicable)



SCRIPTION:

Agricultural field near the site

DATE 2-17-89

TIME 1 A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

V VNW NW NNW

ATHER Clear

TE Burdett

DDU#

OTOGRAPHED BY: W. Francisco

AMPLE ID# (if applicable)



DICE 01723

SCRIPTION:

Agricultural field next to the property

pg 40

DATE 2-17-89  
TIME 1 A.M. P.M.  
DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
U UNW NW NNW  
OTHER Clear  
SITE Burdett  
DUG  
PHOTOGRAPHED BY:  
W. Francisco  
SAMPLE ID# (if applicable)



DESCRIPTION:

Railroad & ~~drainage~~ drainage ditch

DICE 01724

DATE 2-17-89  
TIME 1 A.M. P.M.  
DIRECTION: N NNE NE ENE  
E ESE SE SSE  
S SSW SW WSW  
U UNW NW NNW  
OTHER Clear  
SITE Burdett  
DUG  
PHOTOGRAPHED BY:  
W. Francisco  
SAMPLE ID# (if applicable)



DESCRIPTION:

Railroad & ~~drainage~~ drainage ditch



DATE 2-17-89TIME 1 A.M. ☒ P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

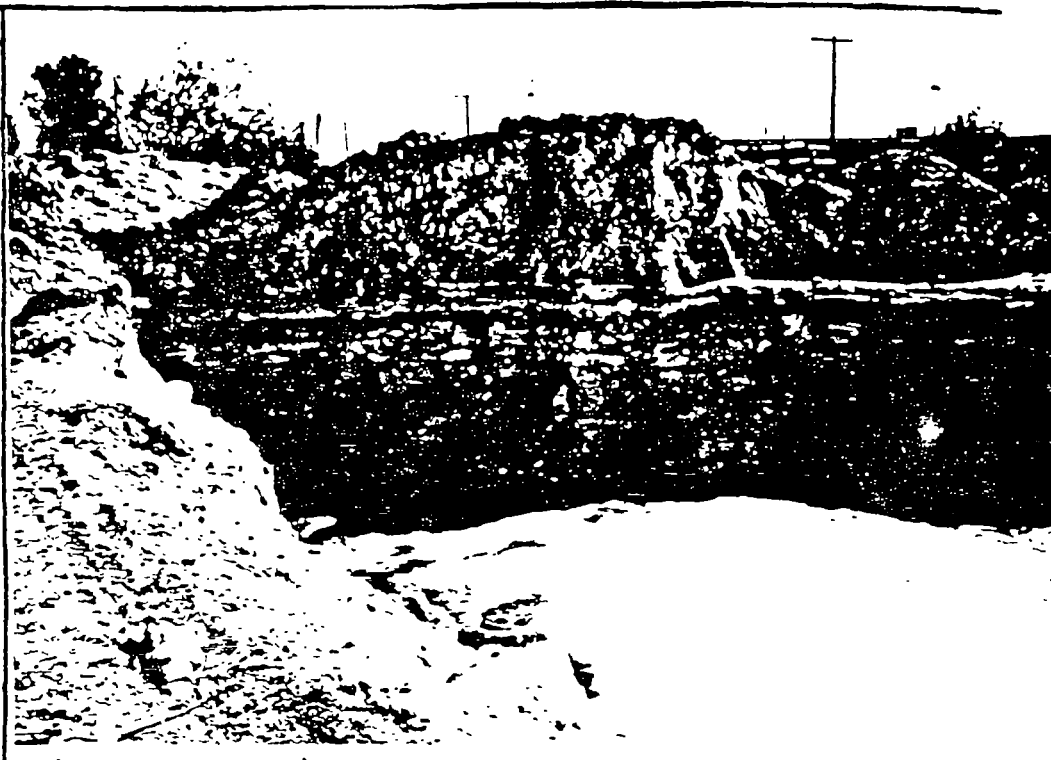
WEATHER ClearSITE Burdett

TPO#

PHOTOGRAPHED BY:

W. Francis CO

SAMPLE ID# (if applicable)

DESCRIPTION: Lime Slurry pitDATE 2-17-89TIME 1 A.M. ☒ P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER ClearSITE Burdett

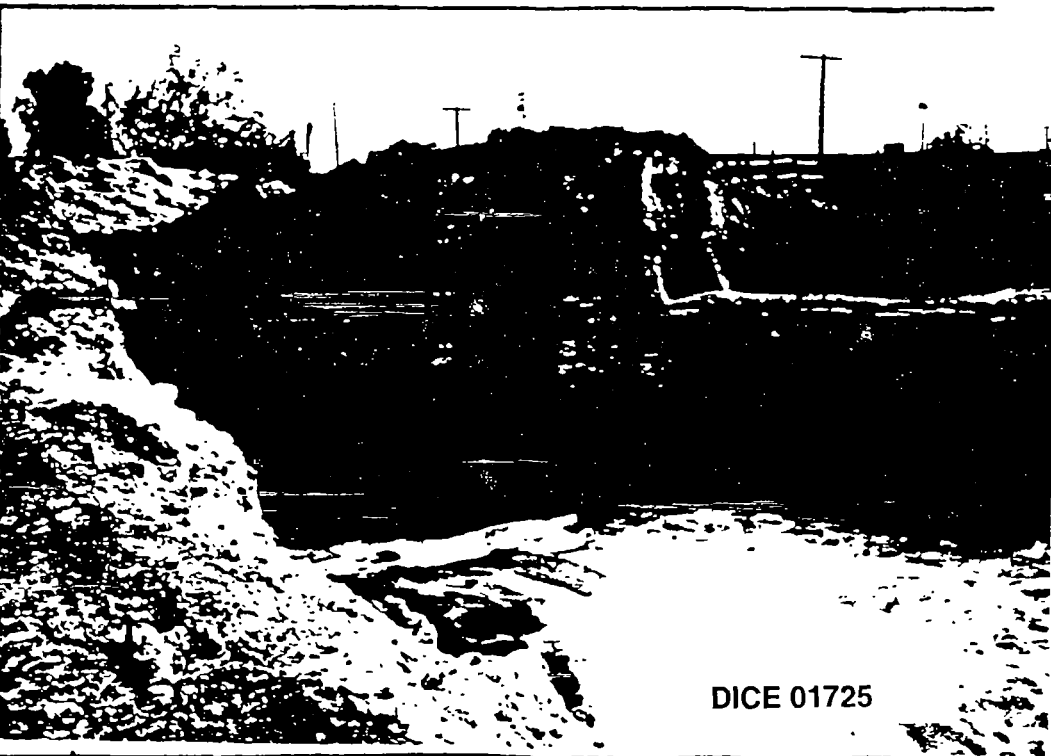
TPO#

PHOTOGRAPHED BY:

W. Francis CO

SAMPLE ID# (if applicable)

DESCRIPTION:



DICE 01725

DATE 2-17-89A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

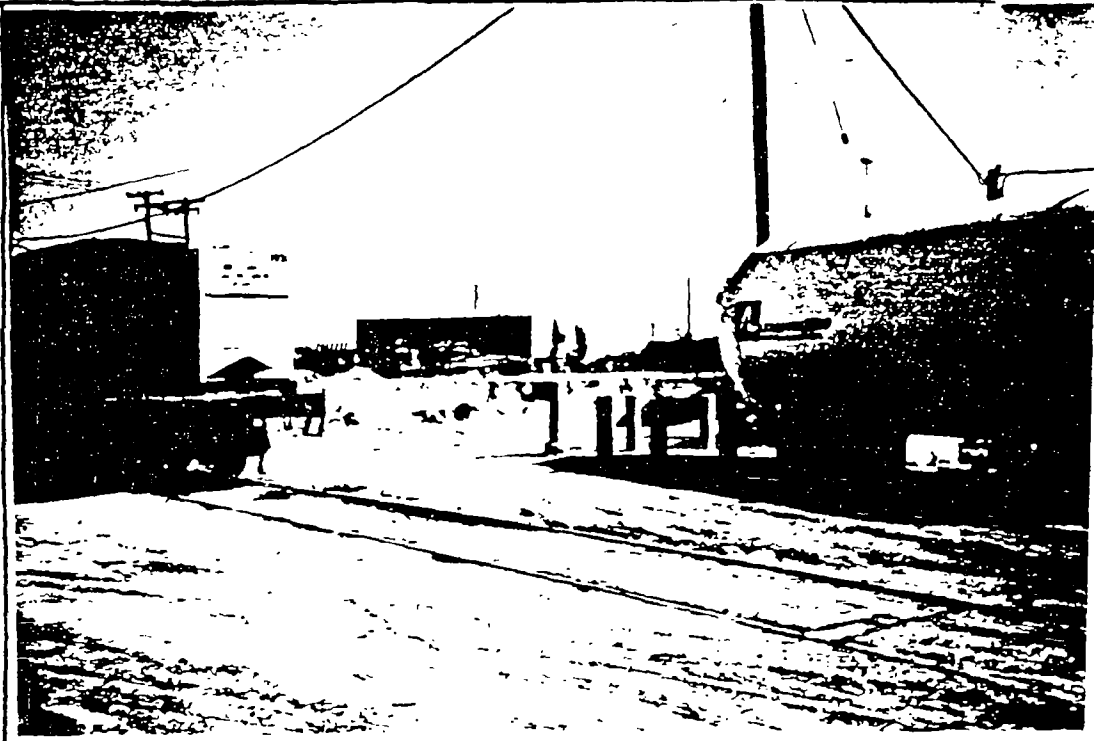
WEATHER ClearE Burdett

TIME

TOGRAPHED BY:

W. Francisco

FILE ID# (if applicable)



DESCRIPTION:

Calcium Carbide bins on railway car to left.Large above ground Propylene tank to right.DATE 2-17-89A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER ClearE Burdett

TIME

TOGRAPHED BY:

S. White

FILE ID# (if applicable)



DICE 01726

lime rolling machine and earth mover tractor

pg 44

DATE 2-17-89

TIME 1 A.M. (P.M.)

DIRECTION: (N) NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

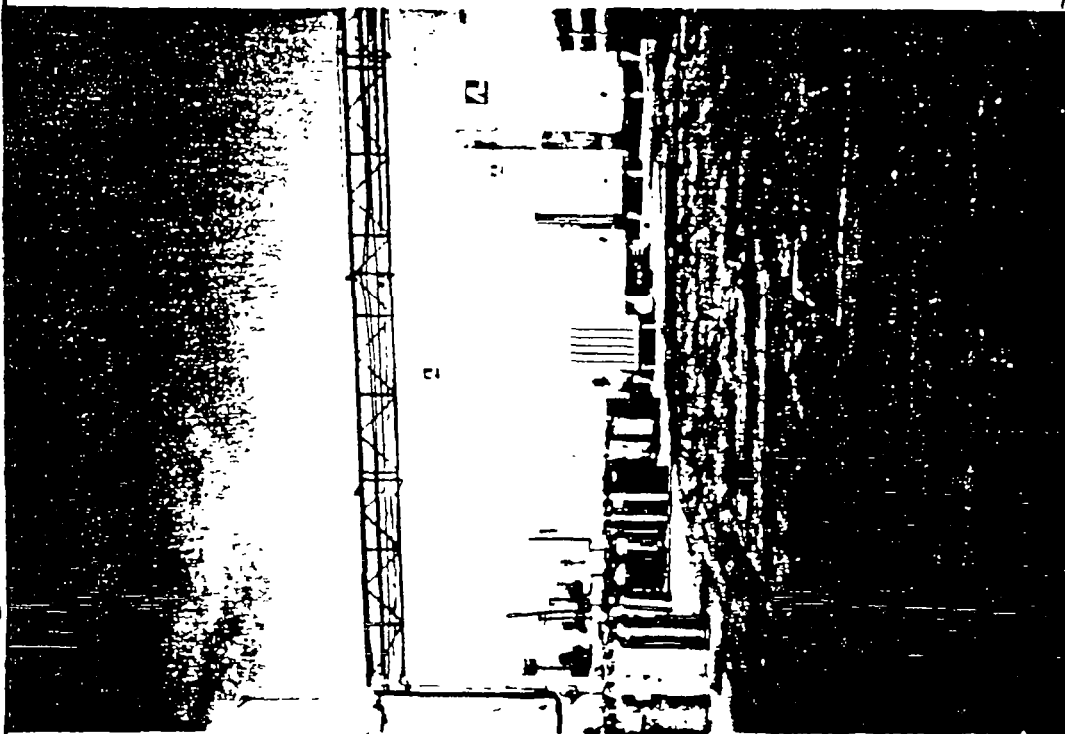
TE Burdett

TOUR

PHOTOGRAPHED BY:

S. White

AMPLE 100' (if applicable)



DESCRIPTION: Above ground storage tanks used to storage  
Liquid gases i.e. Argon.

DICE 01727

DATE 2-17-89

TIME 1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

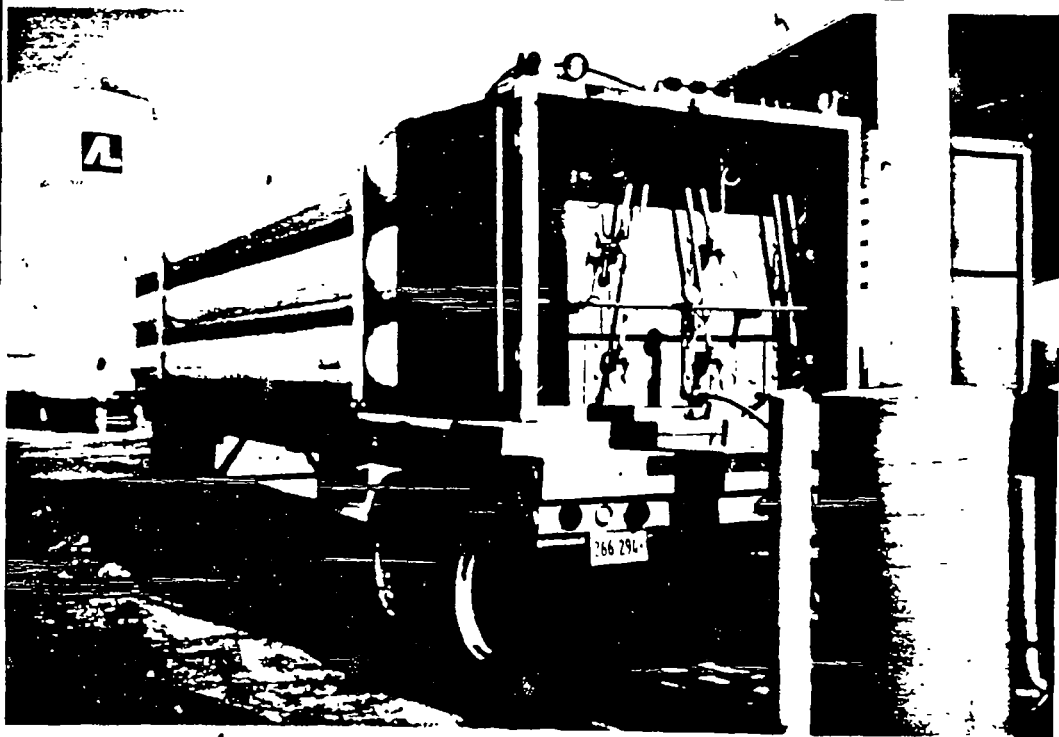
TE Burdett

TOUR

PHOTOGRAPHED BY:

S. White

AMPLE 100' (if applicable)



DESCRIPTION: Transport trailers

45

DATE 2-17-89

TIME 1 A.M. (P.M.)

DIRECTION: N HNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

BY Burdett

TIME

PHOTOGRAPHED BY: S. White

FILE ID# (if applicable)



DESCRIPTION: Slurry pit on the east side of the site

DATE 2-17-89

TIME 1 A.M. (P.M.)

DIRECTION: N HNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

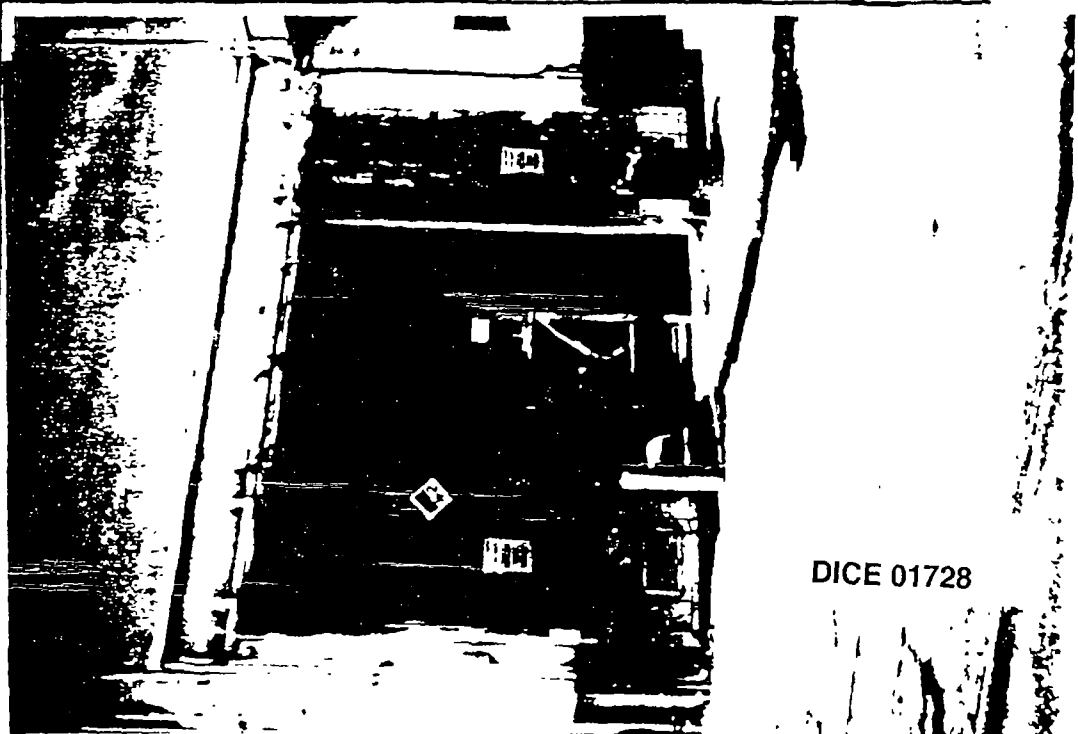
WEATHER Clear

BY Burdett

TIME

PHOTOGRAPHED BY: S. White

FILE ID# (if applicable)



DICE 01728

DESCRIPTION: Calcium Carbide Bin in the Acetylene Plant.

Pg 46

DATE 2-17-89

TIME 1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

E ESE SE SSE

(S) SSW SW WSW

W WNW NW NNW

WEATHER Clear

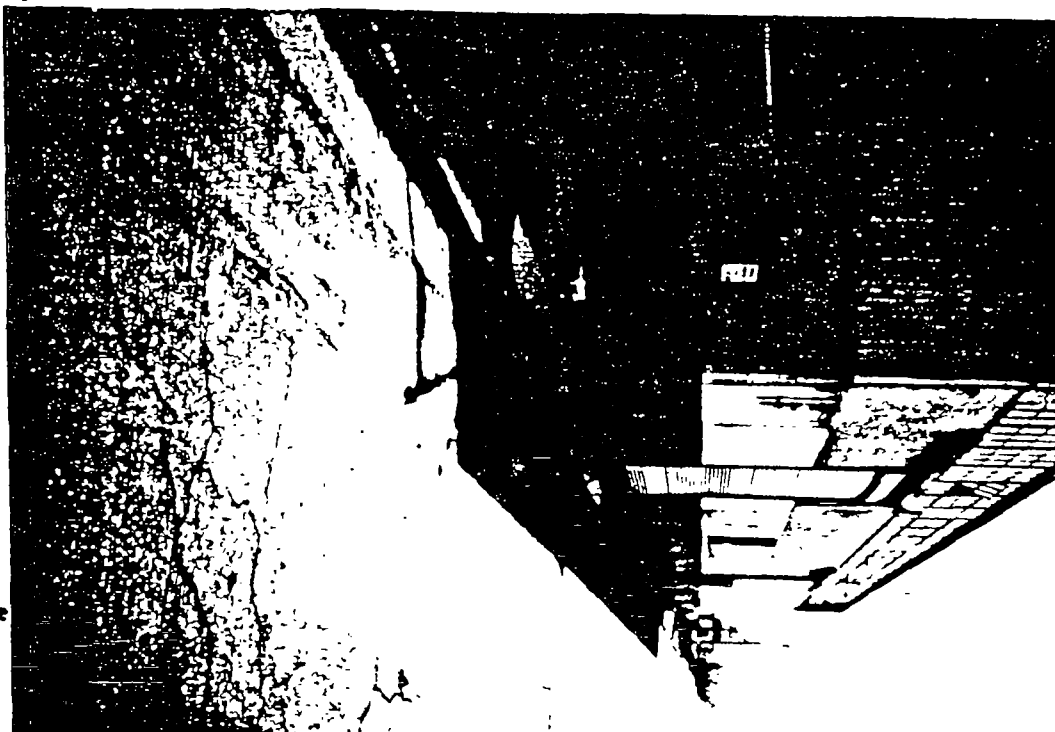
SITE Burdett

IDUF

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DESCRIPTION: The Outer portion of former air separation plant

DATE 2-17-89

TIME 1 A.M. (P.M.)

DIRECTION: N NNE NE ENE

(E) ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

SITE Burdett

IDUF

PHOTOGRAPHED BY: S. White

W. Francisco

SAMPLE ID# (if applicable)



DESCRIPTION: Gas cylinder-fill plant

DICE 01729

pg 47

DATE 2-17-89

TIME 1 A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

SITE Burdett

IDUF

PHOTOGRAPHED BY:

S. White

SAMPLE ID# (if applicable)



DESCRIPTION: Front view of Burdett oxygen CEA  
& Liquid Air.

DATE 2/89

TIME \_\_\_\_\_ A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Rainy

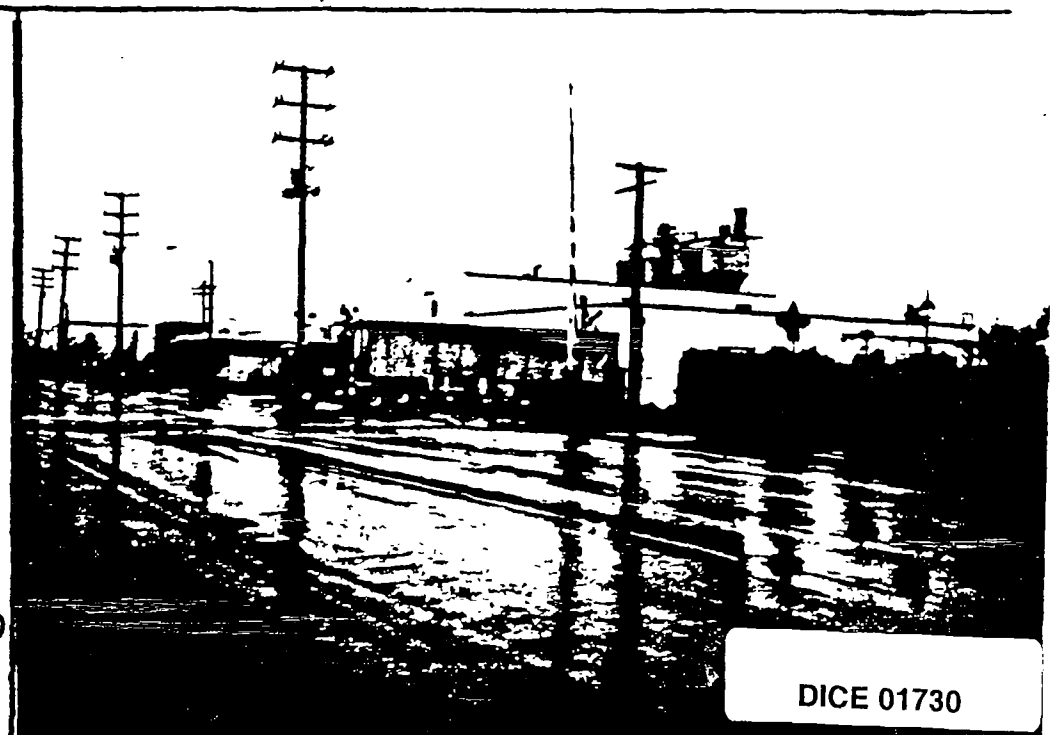
SITE Burdett

IDUF

PHOTOGRAPHED BY:

S. White

SAMPLE ID# (if applicable)



DICE 01730

DESCRIPTION: Dice Ed and Front of Liquid Air.

7848

DATE 2-17-89

1 A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

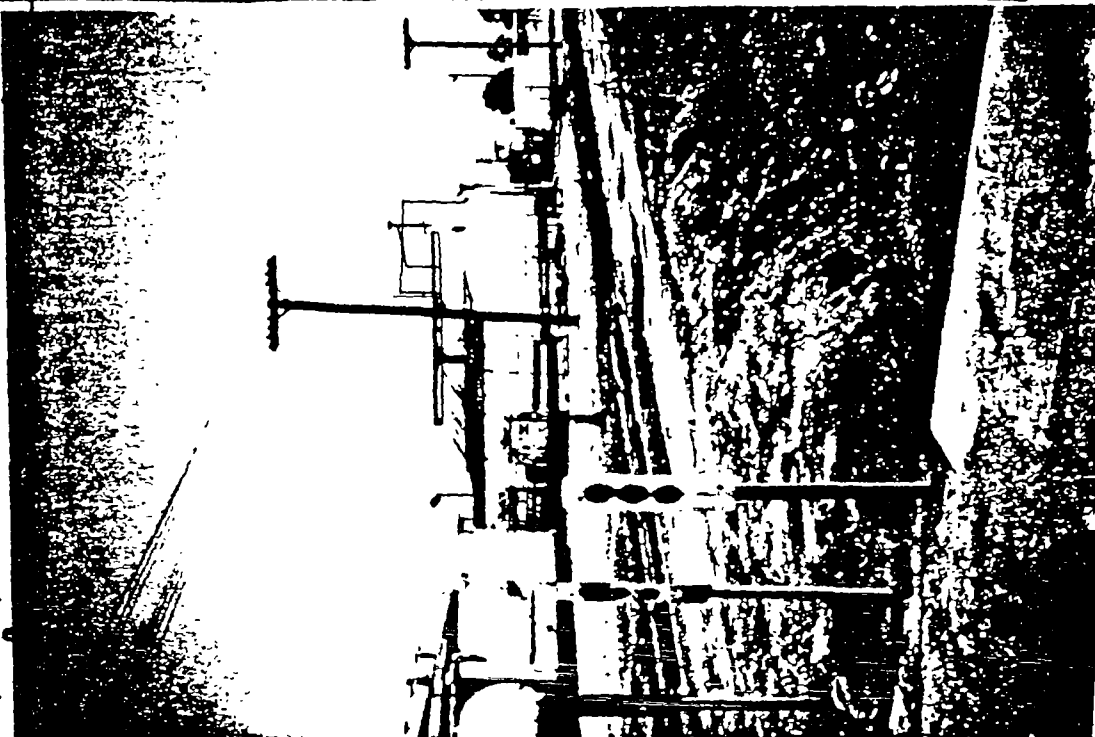
SITE Burdett

TOWNSHIP

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DESCRIPTION: Railroad tracks

DICE 01731

DATE 2-17-89

1 A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

SITE Burdett

TOWNSHIP

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DESCRIPTION: Railroad tracks and drainage ditch

pg 49

DATE 2-17-89

TIME 1 A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

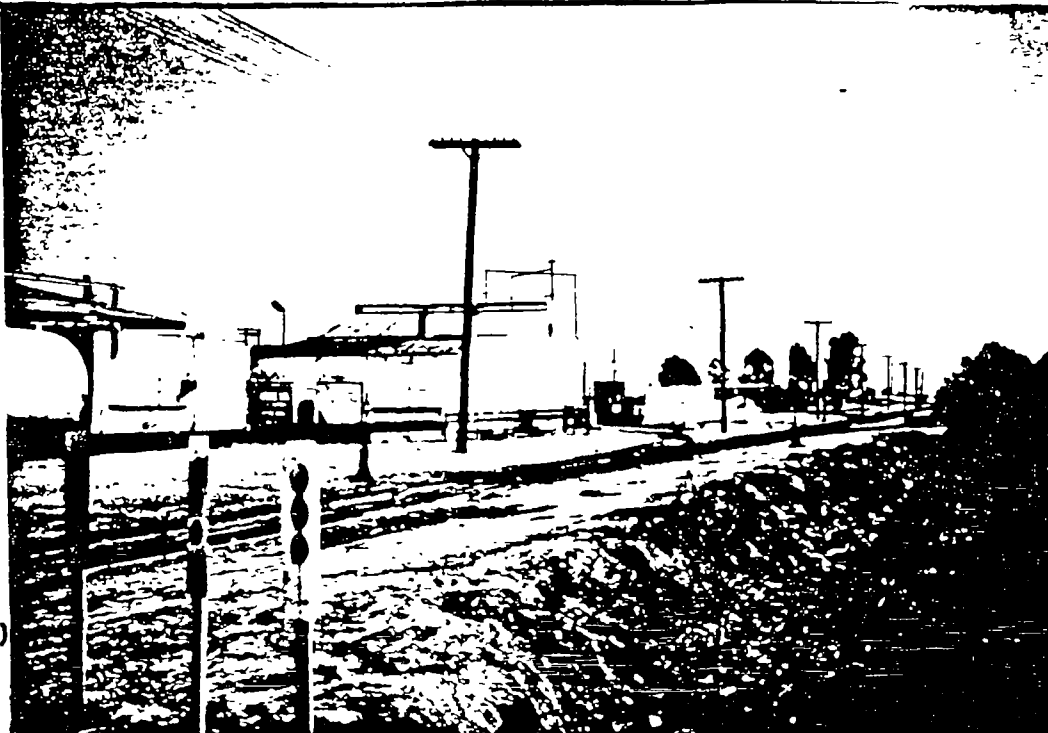
SITE Burdett

TOUR

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DESCRIPTION: Railroad tracks & drainage ditch

DATE 2-17-89

TIME 1 A.M. P.M.

DIRECTION: N NNE NE ENE

E ESE SE SSE

S SSW SW WSW

W WNW NW NNW

WEATHER Clear

SITE Burdett

TOUR

PHOTOGRAPHED BY:

W. Francisco

SAMPLE ID# (if applicable)



DICE 01732

DESCRIPTION: Agricultural field just south west of the



**Kennedy/Jenks Consultants**

**APPENDIX D**

**JOHN L. HUNTER & ASSOCIATES  
LABORATORY REPORT  
31 DECEMBER 1990**

**DICE 01733**

December 31, 1990

JOHN L. HUNTER & ASSOCIATES  
13310 Firestone Blvd., Suite A-2  
Santa Fe Springs, CA 90670

Attn: John L. Hunter

JOB NO. 17412

**WCAS****WEST COAST  
ANALYTICAL  
SERVICE, INC.**

ANALYTICAL CHEMISTS

---

**LABORATORY REPORT**

---

Samples Received: Three (3) soil samples and one (1) water

Date Received: 12-18-90

Date Released for Analysis: 12-19-90

Purchase Order No: Project Name: Santa Fe Springs

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Results</u>
Two (2) soils and one (1) water	Alkalinity by SM 403	Tables 1 & 2
Two (2) soils and one (1) water	pH by EPA 150.1/9040	Table 3
One (1) soil and one (1) water	Volatile Organics by EPA 8260/624	Data Sheets
One (1) soil and one (1) water	Surrogate Percent Recoveries for EPA 8260/624	Data Sheets
Three (3) soils and one (1) water	CAM (17) Metals by ICPMS1	Data Sheets

Page 1 of 2



B. Michael Hovane  
Senior Staff Chemist



D. J. Northington, Ph.D.  
President

DICE 01734

9840 Alburta Avenue • Santa Fe Springs, California 90670 • 213/948-2225 • FAX 213/948-5890

JAN 11 '91 13:08

9411817 PAGE.002

## WEST COAST ANALYTICAL SERVICE, INC.

JOHN L. HUNTER & ASSOCIATES  
Mr. John L. Hunter

Job # 17412  
December 31, 1990

---

LABORATORY REPORT

---

TABLE 1

Parts Per Million (mg/Kg)

<u>Sample ID</u>	<u>Total Alkalinity by SM 403</u>
------------------	-----------------------------------

1A	510000
----	--------

2A	320000
----	--------

Detection Limit	1000
-----------------	------

Date Analyzed: 12-27-90

TABLE 2

Parts Per Million (mg/L)

<u>Sample ID</u>	<u>Total Alkalinity by SM 403</u>
------------------	-----------------------------------

W-A	300000
-----	--------

Detection Limit	10000
-----------------	-------

Date Analyzed: 12-27-90

TABLE 3

<u>Sample ID</u>	<u>pH (Units) by EPA 150.1/9040</u>
------------------	-------------------------------------

1A	12.8
----	------

2A	12.9
----	------

W-A	12.7
-----	------

Date Analyzed: 12-20-90

Page 2 of 2

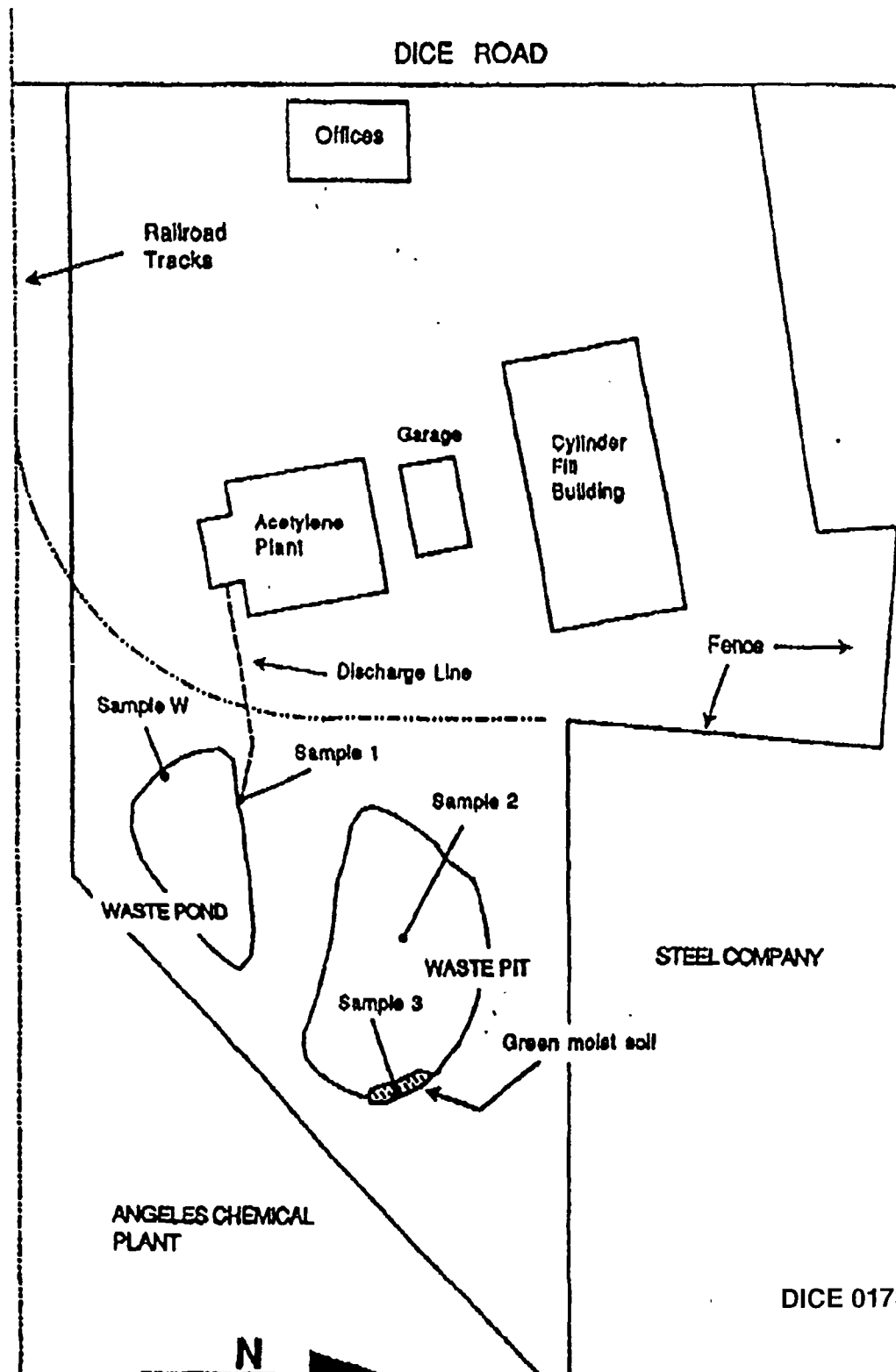
DICE 01735

**INVESTIGATION  
WORKSHEET**FIRM NAME  
Liquid Air

PAGE2 OF 2

ADDRESS  
8832 Dice, Santa Fe Springs, CA

12/17/90



DICE 01736

SANTA FE SPRINGS  
FIRE DEPARTMENT  
11300 Greenstone Ave  
Santa Fe Springs, CA 90870  
(213) 944-9713



## LETTER OF TRANSMITTAL

DATE	1/28/91	FOR NO.
ATTENTION	Erlinda	
RE:	LIQUID AIR	

TO:

L.A. Co. Health

213 746-9299

We are sending you by:

☐ U.S. Mail☐ Via Carrier☒ FAX

No. of Pages

10

Including  
this Sheet

- ☐ Site Assessment  
☐ Extra Report  
☐ Samples

- ☐ Preliminary Draft  
☐ Plans  
☐ Copy of Letter

- ☐ Final Report  
☐ Copy of Permit  
☐ Other \_\_\_\_\_

COPIES	DATE	NO.	DESCRIPTION
1			LAB RESULTS

## TRANSMITTED

☐ For review    ☒ As requested    ☐ Returned for correction

☐ Other \_\_\_\_\_

## REMARKS

Copies to:

By: JOHN HUNTER

JAN 28 '91 16:41

9411817 PAGE.001

DICE 01737

## WEST COAST ANALYTICAL SERVICE, INC.

JOHN L. HUNTER & ASSOCIATES  
Mr. John L. Hunter

Job # 17412  
December 31, 1990

---

LABORATORY REPORT

---

TABLE 1

Parts Per Million (mg/Kg)

<u>Sample ID</u>	<u>Total Alkalinity by SM 403</u>
1A	510000
2A	320000
Detection Limit	1000

Date Analyzed: 12-27-90

TABLE 2

Parts Per Million (mg/L)

<u>Sample ID</u>	<u>Total Alkalinity by SM 403</u>
W-A	300000
Detection Limit	10000

Date Analyzed: 12-27-90

TABLE 3

<u>Sample ID</u>	<u>pH (Units) by EPA 150.1/9040</u>
------------------	-------------------------------------

1A	12.8
2A	12.9
W-A	12.7

Date Analyzed: 12-20-90

Page 2 of 2

DICE 01738

WCS

Client: John L. Hunter & Assoc. Sample: 1A  
 Job Number: 17412  
 Date Analyzed: 12-26-90 File: 7438  
 241

C.A.M. Metals  
 Quantitative Analysis Report  
 Inductively Coupled Plasma-Mass Spectrometry  
 Total Metals Concentration---Parts Per Million

\*\*\*\* Exceeds TTLC limits \* May exceed STLC limits

	Sample mg/Kg	Detection Limit	10X STLC Limits mg/Kg	TTLC Limits mg/Kg
Antimony	ND<0.1	0.1	150	500
Arsenic	0.08	0.07	50	500
Barium	20.4	0.2	1000	10000
Beryllium	0.62	0.07	7.5	75
Cadmium	ND<0.02	0.02	10	100
Chromium (III/VI)	3.2	0.2	5600/50	2500/500
Cobalt	0.98	0.02	800	8000
Copper	9	0.2	250	2500
Lead	2.69	0.1	50	1000
Mercury	ND<0.06	0.06	2	20
Molybdenum	0.14	0.03	3500	3500
Nickel	ND<8	8	200	2000
Selenium	0.4	0.3	10	100
Silver	ND<0.02	0.02	50	500
Thallium	ND<0.02	0.02	70	700
Vanadium	7.92	0.05	240	2400
Zinc	6.3	0.6	2500	5000

- (1) ND-Not Detected. The Limit of Detection is reported above.  
 (2) Chromium reported above as total chromium in sample.  
 (3) 10X STLC Limits used as comparison takes into account dilution of the sample by 1/10 during leachate preparation.

DICE 01739

**WCAS**

Client: John L. Hunter & Assoc. Sample: 2A  
 Job Number: 17412  
 Date Analyzed: 12-26-90 File: 7438  
 251

C.A.M. Metals  
 Quantitative Analysis Report  
 Inductively Coupled Plasma-Mass Spectrometry  
 Total Metals Concentration---Parts Per Million

\*\*\*\* Exceeds TTLC limits \* May exceed STLC limits

	Sample mg/Kg	Detection Limit	10X STLC Limits mg/Kg	TTLC Limits mg/Kg
	-----	-----	-----	-----
Antimony	ND<0.1	0.1	150	500
Arsenic	0.2	0.07	50	500
Barium	29.7	0.2	1000	10000
Beryllium	0.49	0.06	7.5	75
Cadmium	0.04	0.02	10	100
Chromium (III/VI)	6.4	0.2	5600/50	2500/500
Cobalt	2.38	0.02	800	8000
Copper	5.4	0.2	250	2500
Lead	3.36	0.09	50	1000
Mercury	ND<0.05	0.05	2	20
Molybdenum	0.41	0.03	3500	3500
Nickel	37	10	200	2000
Selenium	0.7	0.3	10	100
Silver	ND<0.02	0.02	50	500
Thallium	ND<0.02	0.02	70	700
Vanadium	43.4	0.05	240	2400
Zinc	7.4	0.6	2500	5000

- (1) ND-Not Detected. The Limit of Detection is reported above.  
 (2) Chromium reported above as total chromium in sample.  
 (3) 10X STLC Limits used as comparison takes into account  
 dilution of the sample by 1/10 during leachate preparation.

DICE 01740

**WCAS**



Client: John L. Hunter & Assoc. Sample: 3A  
Job Number: 17412  
Date Analyzed: 12-26-90 File: 7438  
261

C.A.M. Metals  
Quantitative Analysis Report  
Inductively Coupled Plasma-Mass Spectrometry  
Total Metals Concentration---Parts Per Million

\*\*\*\* Exceeds TTLC limits \* May exceed STLC limits

	Sample mg/Kg	Detection Limit	10X STLC Limits mg/Kg	TTLC Limits mg/Kg
Antimony	ND<0.1	0.1	150	500
Arsenic	0.74	0.06	50	500
Barium	25.8	0.2	1000	10000
Beryllium	0.16	0.06	7.5	75
Cadmium	ND<0.02	0.02	10	100
Chromium (III/VI)	3.6	0.2	5600/50	2500/500
Cobalt	1.11	0.02	800	8000
Copper	5.7	0.2	250	2500
Lead	0.57	0.09	50	1000
Mercury	ND<0.05	0.05	2	20
Molybdenum	0.1	0.03	3500	3500
Nickel	6	5	200	2000
Selenium	ND<0.3	0.3	10	100
Silver	ND<0.02	0.02	50	500
Thallium	ND<0.02	0.02	70	700
Vanadium	5.85	0.05	240	2400
Zinc	5.5	0.6	2500	5000

- (1) ND-Not Detected. The Limit of Detection is reported above.  
(2) Chromium reported above as total chromium in sample.  
(3) 10X STLC Limits used as comparison takes into account dilution of the sample by 1/10 during leachate preparation.

DICE 01741

WCAS

Client: John L. Hunter & Assoc.  
Job Number: 17412  
Date Analyzed: 12-26-90

C.A.M. Metals  
Quantitative Analysis Report  
Inductively Coupled Plasma-Mass Spectrometry

Parts Per Million (mg/L)

	W-A	Blank DL
Beryllium	ND<0.003	0.003
Vanadium	ND<0.003	0.003
Chromium	ND<0.007	0.007
Cobalt	0.002	0.001
Nickel	ND<0.04	0.04
Copper	0.007	0.003
Zinc	0.66	0.02
Arsenic	0.001	0.001
Selenium	0.04	0.04
Molybdenum	ND<0.002	0.002
Silver	ND<0.001	0.001
Cadmium	ND<0.001	0.001
Antimony	ND<0.003	0.003
Barium	5.49	0.003
Mercury	ND<0.002	0.002
Thallium	ND<0.001	0.001
Lead	ND<0.003	0.003

ND-Not Detected. The detection limit (DL) is stated above.  
Because of sample interferences, Sample DLs may differ from Blank DLs.

DICE 01742

WCAS

CLIENT: JOHN L. HUNTER  
WCAS JOB #: 17412

SAMPLE: 3A

DATE RECEIVED: 12/18/90  
DATE EXTRACTED: 12/27/90  
DATE ANALYZED: 12/27/90

RUN NUMBER: 17412V6  
SAMPLE AMOUNT: 1.0G  
MATRIX: SOLID

VOLATILE ORGANICS (EPA 624/8260)

UNITS: UG/KG (PPB)

CAS #	COMPOUND	CONCENTRATION	DET LIMIT
67-64-1	ACETONE	180.	30.
71-43-2	BENZENE	ND	5.
75-27-2	BROMODICHLOROMETHANE	ND	5.
75-25-2	BROMOFORM	ND	5.
74-83-9	BROMOMETHANE	ND	30.
78-93-3	2-BUTANONE (MEK)	ND	30.
75-15-0	CARBON DISULFIDE	6.	5.
56-23-5	CARBON TETRACHLORIDE	ND	5.
108-90-7	CHLOROBENZENE	ND	5.
75-00-3	CHLOROETHANE	ND	30.
110-75-8	2-CHLOROETHYL VINYL ETHER	ND	50.
67-66-3	CHLOROFORM	ND	5.
74-87-3	CHLOROMETHANE	ND	30.
108-41-8	CHLOROTOLUENE	ND	5.
124-48-1	DIBROMOCHLOROMETHANE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	5.
541-73-1	1,3-DICHLOROBENZENE	ND	5.
106-46-7	1,4-DICHLOROBENZENE	ND	5.
75-34-3	1,1-DICHLOROETHANE	ND	5.
107-06-2	1,2-DICHLOROETHANE	ND	5.
75-35-4	1,1-DICHLOROETHYLENE	ND	5.
156-59-4	CIS-1,2-DICHLOROETHYLENE	ND	5.
156-60-5	TRANS-1,2-DICHLOROETHYLENE	ND	5.
78-87-5	1,2-DICHLOROPROPANE	ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	5.
100-41-4	ETHYLBENZENE	ND	5.
106-93-4	ETHYLENE DIBROMIDE	ND	5.
76-13-1	FREON-TF	ND	5.
119-78-6	2-HEXANONE	ND	30.
75-09-2	METHYLENE CHLORIDE	ND	30.
108-10-1	4-METHYL-2-PENTANONE (MIBK)	ND	30.
100-42-5	STYRENE	ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	5.
127-18-4	TETRACHLOROETHYLENE	ND	5.
109-99-9	TETRAHYDROFURAN	ND	30.
108-88-3	TOLUENE	ND	5.
71-55-6	1,1,1-TRICHLOROETHANE	ND	5.
79-00-5	1,1,2-TRICHLOROETHANE	ND	5.
79-01-6	TRICHLOROETHYLENE	ND	5.
75-69-4	TRICHLOROFLUOROMETHANE	ND	5.
108-05-4	VINYL ACETATE	ND	30.
75-01-4	VINYL CHLORIDE	ND	30.
95-47-6	TOTAL XYLENES	ND	5.

DICE 01743

WCAS

## TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT: JOHN L. HUNTER  
WCAS JOB #: 17412

SAMPLE: JA

UNITS: UG/KG (PPB)

COMPOUND NAME	FRACTION	APPROXIMATE CONCENTRATION
1 UNIDENTIFIED COMPOUND	VOA	40.

DICE 01744

WCAS

CLIENT: JOHN L. HUNTER  
WCAS JOB #: 17412

SAMPLE: W-A

DATE RECEIVED: 12/18/90  
DATE EXTRACTED: 12/27/90  
DATE ANALYZED: 12/27/90

RUN NUMBER: 17412V7  
SAMPLE AMOUNT: 5ML  
MATRIX: WATER

VOLATILE ORGANICS (EPA 624/8260)

UNITS: UG/L (PPB)

CAS #	COMPOUND	CONCENTRATION	DET LIMIT
67-64-1	ACETONE	220.	5.
71-43-2	BENZENE	ND	1.
75-27-2	BROMODICHLOROMETHANE	ND	1.
75-25-2	BROMOFORM	ND	1.
74-83-9	BROMOMETHANE	ND	5.
78-93-3	2-BUTANONE (MEK)	15.	5.
75-15-0	CARBON DISULFIDE	ND	1.
56-23-5	CARBON TETRACHLORIDE	ND	1.
108-90-7	CHLOROBENZENE	ND	1.
75-00-3	CHLOROETHANE	ND	5.
110-75-8	2-CHLOROETHYL VINYL ETHER	ND	10.
67-66-3	CHLOROFORM	ND	1.
74-87-3	CHLOROMETHANE	ND	5.
108-41-8	CHLOROTOLUENE	ND	1.
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
95-50-1	1,2-DICHLOROBENZENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
75-35-4	1,1-DICHLOROETHYLENE	ND	1.
156-59-4	CIS-1,2-DICHLOROETHYLENE	ND	1.
156-60-5	TRANS-1,2-DICHLOROETHYLENE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
76-13-1	FREON-TF	ND	1.
119-78-6	2-HEXANONE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	7.
108-10-1	4-METHYL-2-PENTANONE (MIBK)	ND	5.
100-42-5	STYRENE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
127-18-4	TETRACHLOROETHYLENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	5.
108-88-3	TOLUENE	ND	1.
71-55-6	1,1,1-TRICHLOROETHANE	2.	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
79-01-6	TRICHLOROETHYLENE	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
95-47-6	TOTAL XYLENES	ND	1.

WCAS

DICE 01745

## TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT: JOHN L. HUNTER  
WCAS JOB #: 17412

SAMPLE: W-A

UNITS: UG/L (PPB)

COMPOUND NAME	FRACTION	APPROXIMATE CONCENTRATION
1 UNIDENTIFIED COMPOUND	VOA	20.

DICE 01746

WCAS

RECEIVED

SAFETY DEPARTMENT

WCAS

WEST COAST  
ANALYTICAL  
SERVICE, INC.

ANALYTICAL CHEMISTS

January 10, 1991

Mr. David N. Simon  
LIQUID AIR  
2121 North California Blvd.  
Walnut Creek, CA 94596

Dear Mr. Simon:

During your visit on 1-9-91 we reviewed the work our lab had done for Mr. John Hunter on Job Number 17412, especially the pH and 8240 results. At that time I agreed to write this letter to voice my opinion about the significance of the test results.

Prior to our discussion about pH, my feeling was that measuring pH at extremes ( $<2$  and  $>11$ ) was not very accurate. Our pH meter is typically calibrated to only pH 10 according to the manufacturers instructions. After our discussions about other standard buffers and temperature effects at high pH, we have now changed our Standard Operating Procedure (SOP) so that more accurate measurements can be made at extreme pHs, probably within 0.1 pH units. We appreciate the information you shared with us.

A review of the volatile organic (EPA 8240) results for acetone, MEK, and carbon disulfide was of little help in determining their origin. The data showed that these compounds were not in our blank or the samples analyzed just before yours, at least not at concentrations as high as your samples. We must warn you that this test is very sensitive, and that test showed low levels just above the detection limits. While it might seem that 200 ppb of acetone is significant, that result is only six times our detection limit. As you saw from the chromatograms, acetone was a very tiny peak. We generally tell our clients not to place much significance on results unless they are at least 10 times the detection limit. A recent news letter (enclosed) discusses this. While acetone was only 6-7 times the detection limit, carbon disulfide and MEK were reported right at detection limits, making their origin even more suspect.

DICE 01747

While this does not help find the origin of these compounds, the point is that their presence and concentration in your samples is suspect. Our position is that no conclusion should or ought to be made for such components. There are many potential origins for such low concentrations being found. Even though the data does not support laboratory contamination, it can not be completely ruled out. Other sources of contamination are as follows:

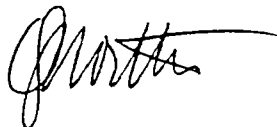
1. Ambient Air. Aldehydes and ketones are ubiquitous in nature. The environmental literature has many references for extraordinary care required in sampling for chemicals that are present in nature. Acetone is not only a very common industrial chemical, but it is naturally occurring. MEK often accompanies acetone as an impurity.
2. Sampling containers. Many plastics, adhesives, and packing materials contain traces of various solvents.
3. Contamination during transport and storage.

The latter two possibilities could have been made less likely if a trip blank and/or field blank had been submitted and found clean. In their absence, the potential for trace contamination from a variety of sources is a real possibility.

In conclusion, a great deal more work would be necessary to determine conclusively whether acetone, MEK, and carbon disulfide are actually in your samples. Multiple field samples, field blanks, and trip blanks would be required. We hope that this information is helpful.

Please let us know if this meets with your approval. If so, I'll send you a signed original and send Mr. Hunter a copy.

Sincerely,  
WEST COAST ANALYTICAL SERVICE, INC.



D.J. Northington, Ph.D.  
President

DJ/mc H:LIQAIR.110

cc: John Hunter

Enclosure: Newsletter

DICE 01748

WCAS





**LIQUID AIR**

AN AIR LIQUIDE GROUP COMPANY

CERTIFIED MAIL RETURN RECEIPT REQUESTED NO. P 308 559 139

February 8, 1991

Robert C. Wilson, Fire Chief  
City of Santa Fe Springs  
11300 Greenstone Ave.  
Santa Fe Springs, CA 90670-4619

Subject: Liquid Air Corporation  
8832 Dice Road  
Santa Fe Springs, CA 90670

Dear Chief Wilson:

After our meeting on January 9, 1991, (our) Scott Gordon and I met with Mr. Jack Northington, President of West Coast Analytical Service, the lab who analyzed our lime and limewater from Santa Fe Springs. He confirmed to us that the pH and organic compound test results obtained cannot be relied upon to make any regulatory determinations as explained in his January 10, 1991 letter to me, attached. In sum:

1. The pH tests on the lime and limewater are invalid because EPA Test Method 9040 (required under 40 CDR 261.22 (a)(1) and Title 22 CCR 66708 (a)(1)) and established laboratory procedures were not followed in that:
  - a. Method 9040 requires that buffer solutions used to calibrate the pH instrument must bracket the expected value and be at least 3 pH units apart. This means the correct buffer solutions should be a saturated solution of calcium hydroxide (pH 12.454 @ 25°C) and 0.01 M Borax (pH 9.180 @ 25°C). The buffer solutions used by West Coast Analytical were pH 7 and 10. No bracketing took place.

**DICE 01749**

.../...

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- b. The standard temperature for the characterization of chemical compounds including equilibrium constants is 25°C. The lime and limewater samples were measured at an unrecorded "room temperature," two hours after removal from the refrigerator.<sup>1</sup>

Sample (and buffer) solutions temperatures must be recorded; they were not. Further, the standard temperature for regulatory purposes when measuring pH must be 25°C, the temperature upon which the 0-14 pH scale is based<sup>2</sup> and the temperature at which the pH of the buffer solutions is given. The pH of alkaline solutions is very sensitive to temperature.

- c. The lime and limewater samples were not filtered prior to measuring pH. Measurements of pH in solutions containing solid suspensions are often erroneous and thus not reliable, particularly when a combination pH electrode is used. It is a sound practice to remove the suspended solids by filtration before testing.
- d. The pH measuring instrument used has inherent inaccuracies in the upper non-linear pH measuring range.

The pH of hydrated lime (saturated solution of calcium hydroxide) cannot exceed 12.454 at 25°C. Bates, NBS A66 (1962). Merck Index, 11th edition.

2. The organic compound tests on the lime and limewater are invalid because sampling procedures in EPA's SW-846 Manual were not followed as explained hereunder:

- a. Portable sample bottle contamination. No field blank was used or analyzed to verify cleanliness.
- b. Sample bottles were not capped and sealed properly. The

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<sup>1</sup> In fact, evaporation would cause the sample temperature to be lower than the room temperature.

<sup>2</sup> Standard Methods for Investigating Water and Wastewater, AWWA, 1985 Ed., p. 429

.../...

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Robert Wilson  
Page 3  
February 8, 1991

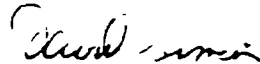
lime brass core samplers should have been capped and sealed with teflon (inert) sheets. Instead, they were sealed with electrical tape which commonly emits organic vapors from glue. The limewater sample bottle should have been a VOA glass bottle sealed with a teflon lined septum. The bottle used was sealed with a polymeric (plastic) type material.

- c. Sample results were less than 10-20 times the detectable limit for the respective compound measured. This makes them unreliable.

In view of the foregoing, we think you will readily agree that the sampling and analysis performed on our material were seriously flawed and therefore not indicative of the material's physical character.

I would be pleased to provide any additional information or assistance that you may need.

Very truly yours,



David N. Simon  
Manager Regulatory Affairs

DNS/je/cb

cc: John Baird, Esq. - General Counsel Liquid Air Corp.  
Steve Pebler - Liquid Air, Santa Fe Springs

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DICE 01751

**Kennedy/Jenks Consultants**

**APPENDIX E**

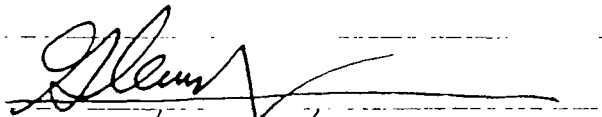
**SOUTHERN CALIFORNIA LABORATORY REPORT  
9 SEPTEMBER 1991**

**DICE 01752**

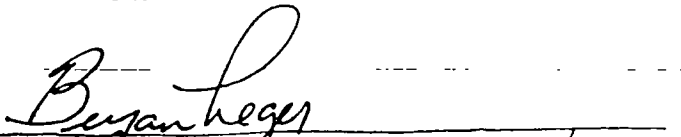
Aug. 26, 1991

Liquid Air Corp.  
8832 Dice Road  
Santa Fe Springs, CA  
CAD000021160

On Aug. 26, 1991 8 samples were collected at Liquid Air Corp. Four (4) samples were given to Brian Leger on Aug. 26, 1991 (split samples).

  
G. Hernandez, CAL EPA

8/26/91  
Date

  
Liquid Air Representative

8/26/91  
DATE

Southern California Laboratory - Hazardous Materials Unit  
 1449 Temple Street, Los Angeles Ca. 90026  
 Telephone 213-620-3376

To : Guillermo Hernandez.

SCL No. : 10389 to 10392.

Sampling No. : See below.

Date of Report: 9-9-91.

Sample Location: Liquid Air.

Analytical Procedures Used: Digestion : EPA 3055

Analysis : EPA 6010.

pH : EPA 9040 &amp; 9045.

## Analysis Results:

SCL No.	10389	10390	10391-Liquid	10391-Solids	10392
Field No.	LA-SA-01	LA-SA-02	LA-SA-03		LA-SA-04
Units	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg
Silver	<4	<4	<4	<50	<50
Arsenic	<4	<4	<4	<50	<50
Barium	6	6	6	<50	<50
Beryllium	<0.4	<0.4	<0.4	<5	<5
Cadmium	<0.8	<0.8	<0.8	<10	<10
Cobalt	<4	<4	<4	<50	<50
Chromium	<4	<4	<4	<50	<50
Copper	<4	<4	<4	<50	<50
Molybdenum	<4	<4	<4	<50	<50
Nickel	<4	<4	<4	<50	<50
Lead	<4	<4	<4	<50	<50
Antimony	<4	<4	<4	<50	<50
Selenium	<0.8	<0.8	<0.8	<10	<10
Thallium	<4	<4	<4	<50	<50
Vanadium	<4	<4	<4	<50	<50
Zinc	<4	<4	<4	<50	<50
pH	12.3 at 22 deg C	12.3 at 21 deg C	12.4 at 21 deg C		9.4 at 25 deg C

Analyst's Signature

Supervisor's Signature

DICE 01754

Jay Patel

Date

Janice Wakakuwa

Date

QC Summary for Metal Analysis  
 Southern California Laboratory - Hazardous Materials Unit  
 1449 Temple Street, Los Angeles, Ca. 90026  
 Telephone 213-620-3376

To : Guillermo Hernandez, Sample Set SCL Nos : 10389 to 10391  
 Matrix : Liquids & Solids Date of Analysis : 9-8-91.  
 Level of Spike : 10 & 2 ppm. Standard Lot Number: SP0891DK100/20  
 Duplicate done on: 10392. Spike done on : 10392.  
 Sample Location: Liquid Air.  
 Analytical Procedures Used: Digestion : EPA 3055 Analysis : EPA 6010

	Reagent Blank	Method Std % Rec	Laboratory Control Sample			% RPD		Matrix Spike % Rec
			Expected Range	Found Dup A	Dup B	Ref Material	SMPL DUP	
I.D. of the Laboratory Control Sample: RMM 1088								
Units	mg/L	%	mg/kg	mg/kg	mg/kg	%	%	%
Silver	<1	109	360-505	474	454	5	*	86
Arsenic	<1	104	1550-1890	2219	1684	(27)	*	82
Barium	<1	107	2320-4480	4097	4062	0.9	*	90
Beryllium	<0.1	111	41-96	88	84	2	*	83
Cadmium	<0.2	108	406-490	476	441	8	*	75
Cobalt	<1	105	3280-3990	3746	3566	5	*	76
Chromium	<1	105	2110-2550	2412	2252	7	*	80
Copper	<1	109	1900-2760	2427	2260	7	*	93
Molybdenum	<1	**	2970-3600	3465	3134	10	*	**
Nickel	<1	107	1860-2010	1892	1783	6	*	78
Lead	<1	104	900-1150	968	949	2	*	78
Antimony	<1	**	310-548	519	502	3	*	**
Selenium	0.23	104	380-500	485	432	12	*	91
Thallium	<1	95	580-1060	1687	805	(71)	*	72
Vanadium	<1	103	3060-3680	3486	3380	3	*	89
Zinc	<1	106	2570-3280	2894	2767	5	*	86
Acceptable Range		80%-120%				< 20%		75%-125%

\*Element not found. \*\*Element not present in std used. ()Refer narrative.

Analyst's Signature

DICE 01755

Supervisor's Signature

*Jeffrey*  
 Day Patel

9-10-91  
 Date

*Janice Wahakuwa*  
 Janice Wahakuwa

9/10/91  
 Date

STATE OF DELAWARE  
OFFICE OF SECRETARY OF STATE

I, EUGENE BUNTING, Secretary of State of the State of Delaware, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of Certificate of Incorporation of the "INTERNATIONAL LIQUID AIR INC.", as received and filed in this office the ninth day of January, A. D. 1970, at 10 o'clock A. M.

IN TESTIMONY WHEREOF, I have hereunto  
set my hand and official seal at Dover  
this ninth day of January in the year of  
our Lord one thousand nine hundred and  
seventy.

EUGENE BUNTING  
Secretary of State

R. H. CALDWELL  
Ass't. Secretary of State

""""""""""  
" Secretary's Office "  
" "  
" 1855 Delaware 1793 "  
""""""""""



CERTIFICATE OF INCORPORATION  
of  
INTERNATIONAL LIQUID AIR INC.

---ooOoo---

1. The name of the corporation is INTERNATIONAL LIQUID AIR INC.

2. The address of its registered office in the State of Delaware is No. 100 West Tenth Street, in the City of Wilmington, County of New Castle. The name of its registered agent at such address is The Corporation Trust Company.

3. The nature of the business or purposes to be conducted or promoted is:

To engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of Delaware.

4. The total number of shares of stock which the corporation shall have authority to issue is two thousand (2,000); all of such shares shall be without par value.

5. The name and mailing address of each incor-

porator is as follows:

<u>NAME</u>	<u>MAILING ADDRESS</u>
B. J. Consono	100 West Tenth Street Wilmington, Delaware
F. J. Obara, Jr.	100 West Tenth Street Wilmington, Delaware
J. L. Rivera	100 West Tenth Street Wilmington, Delaware

WE, THE UNDERSIGNED, being each of the incorporators hereinbefore named, for the purpose of forming a corporation pursuant to the General Corporation Law of the State of Delaware, do make this certificate, hereby declaring and certifying that this is our act and deed and the facts herein stated are true, and accordingly have hereunto set our hands this 9th day of January, 1970.

\_\_\_\_\_  
B. J. Consono

\_\_\_\_\_  
F. J. Obara, Jr.

\_\_\_\_\_  
J. L. Rivera

STATE OF DELAWARE )  
COUNTY OF NEW CASTLE }

BE IT REMEMBERED that on this 9th day of January A. D. 1970, personally came before me, a Notary Public for the State of Delaware, B. J. Consono, F. J. Obara, Jr. and J. L. Rivera, all of the parties to the foregoing certificate of incorporation, known to me personally to be such, and severally acknowledged the said certificate to be the act and deed of the signers respectively and that the facts stated therein are true.

GIVEN under my hand and seal of office the day and  
year aforesaid.

A. Dana Atwell  
Notary Public

" A. DANA ATWELL "
   
 " NOTARY PUBLIC "
   
 " APPOINTED OCT. 27, 1969 "
   
 " STATE OF DELAWARE "
   
 " TERM TWO YEARS "



**Office of Secretary of State**

I, Robert H. Reed, Secretary of State of the State of Delaware,  
do hereby certify that the above and foregoing is a true and correct copy of  
Certificate of Amendment of the "INTERNATIONAL LIQUID AIR INC.", as received and  
filed in this office the twenty-second day of March, A.D. 1973, at 10 o'clock A.M.

In Testimony Whereof, I have hereunto set my hand  
and official seal at Dover this twenty-second day  
of March in the year of our Lord  
one thousand nine hundred and seventy-three.

*Robert H. Reed*

Secretary of State

*W. B. Sullivan*

Ass't Secretary of State

CERTIFICATE OF AMENDMENT  
OF  
RESTATED CERTIFICATE OF INCORPORATION

INTERNATIONAL LIQUID AIR INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of International Liquid Air Inc., by unanimous consent without a meeting pursuant to Section 141(f) of the General Corporation Law of the State of Delaware, duly adopted resolutions setting forth a proposed amendment to the Restated Certificate of Incorporation of the Corporation, declaring said amendment to be advisable and calling for consideration thereof by the stockholders of the Corporation. The resolution setting forth the proposed amendment is as follows:

RESOLVED, that the name of this Corporation be changed to "Liquid Air Corporation of North America" and that Article 1 of the Restated Certificate of Incorporation of this Corporation be amended to read as follows:

1. The name of the corporation is LIQUID AIR CORPORATION OF NORTH AMERICA.

SECOND: That written consent to the Amendment by the holder of record of more than a majority of the issued and outstanding capital stock of the Corporation and that a vote on the Amendment has been duly given in accordance with the provisions of Section 228 of the General Corporation Law


of the State of Delaware, and that written notice of the calling of such action has been duly given in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware to all stockholders who did not consent in writing.

THIRD: That said Amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

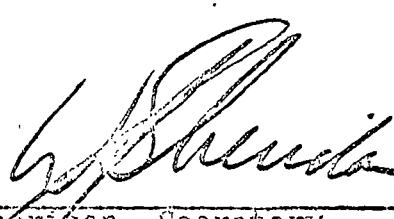
IN WITNESS WHEREOF, said International Liquid Air Inc. has caused this certificate to be signed by Pierre A. Sarrasin, its President, and attested by Ward J. Sheridan, its Secretary, this 21st day of March, 1973.

INTERNATIONAL LIQUID AIR INC.

By

  
Pierre A. SARRASIN, President

ATTEST:

  
Ward J. Sheridan, Secretary

*State of Delaware*  
*Office of the Secretary of State*

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PAGE 1

I, WILLIAM T. QUILLEN, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF OWNERSHIP OF AL AMERICA HOLDINGS, INC., A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, MERGING LIQUID AIR CORPORATION A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, PURSUANT TO SECTION 253 OF THE GENERAL CORPORATION LAW OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE TENTH DAY OF JANUARY, A.D. 1994, AT 1 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE AFORESAID CORPORATION SHALL BE GOVERNED BY THE LAWS OF THE STATE OF DELAWARE.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE APPROPRIATE COUNTY RECORDER OF DEEDS FOR RECORDING.

\* \* \* \* \*

DICE 01763



*William T. Quillen*  
\_\_\_\_\_  
William T. Quillen, Secretary of State

AUTHENTICATION:

\*4235404

DATE.

01/10/1994

734010022

**CERTIFICATE OF OWNERSHIP AND MERGER  
MERGING  
LIQUID AIR CORPORATION  
INTO  
AL AMERICA HOLDINGS, INC.**

(Pursuant to Section 253 of the General  
Corporation Law of the State of Delaware)

AL America Holdings, Inc., a corporation organized and existing under the laws of the State of Delaware (the "Corporation"), DOES HEREBY CERTIFY:

**FIRST:** That the Corporation was incorporated on the 2nd day of July, 1987, pursuant to the General Corporation Law of the State of Delaware.

**SECOND:** That the Corporation owns all of the outstanding shares of each class of stock of Liquid Air Corporation, a corporation incorporated on the 9th day of January, 1970, pursuant to the General Corporation Law of the State of Delaware.

**THIRD:** That the Corporation, by the following resolutions of its Board of Directors, duly adopted by the unanimous written consent of the directors dated December 2, 1993 and filed with the minutes of the Board of Directors, determined to merge into itself its wholly-owned subsidiary, Liquid Air Corporation, on the conditions set forth in such resolutions:

RESOLVED, that Liquid Air Corporation, a Delaware corporation, all of the issued and outstanding capital stock of which is owned by this Corporation, be merged into this Corporation, in accordance with the applicable provisions of the laws of the State of Delaware, and that this Corporation assume all of the liabilities and obligations of said Liquid Air Corporation upon such merger; and further

RESOLVED, that the merger shall not involve the issuance of any additional shares of capital stock of the Corporation and that there shall be no change in the Certificate of Incorporation of the Corporation as the surviving corporation as a result of the merger; and further

RESOLVED, that the merger shall become effective upon the filing of a Certificate of Ownership and Merger with the Secretary of State of the State of Delaware, but shall, for accounting and all other purposes, be deemed to have become effective as of 12:01 a.m. on January 1, 1994; and further

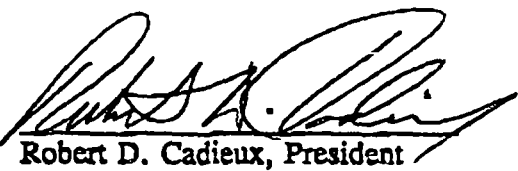


-2-

RESOLVED, that the proper officers of the Corporation be, and they hereby are, authorized and directed to make, execute and file such agreements, certificates, consents and other papers as may, in their judgment, be necessary or desirable in order to effectuate the merger, and that, in furtherance of this authorization, the President or any Vice President and the Secretary or any Assistant Secretary are hereby authorized to make, execute and file a Certificate of Ownership and Merger as required by the laws of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this certificate to be signed by Robert D. Cadieux, its President, and attested by John N. Baird, its Secretary, this 27 day of December, 1993.

AL AMERICA HOLDINGS, INC.

By:   
Robert D. Cadieux, President

ATTEST:

By:   
John N. Baird, Secretary

DICE 01765



781 East Washington Blvd., Los Angeles, CA 90021  
(213) 745-5312 FAX (213) 745-6372

July 06, 2007

Mr. Oscar Perez  
Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

Report No.: 7060278  
Project Name: Air Liquide

Dear Mr. Oscar Perez,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on June 29, 2007.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.



Project Manager

DICE 01766



781 East Washington Blvd., Los Angeles, CA 90021  
(213) 745-5312 FAX (213) 745-6372

## Certificate of Analysis

Page 2 of 7

Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

File #: 73972  
Report Date: 07/06/07  
Submitted: 06/29/07  
PLS Report No.: 7060278

Attn: Mr. Oscar Perez

Phone: (310) 764-5851 FAX: (310) 764-5863

Project: Air Liquide

Sample ID: AL1 Soil (7060278-01) Sampled:06/29/07 09:00 Received:06/29/07 10:10											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
pH	12.3		1	pH Units	0.1	EPA 9045C	EPA 9045C	07/02/07	07/02/07	ge	BG70218
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	5.16		1	mg/kg	2.50	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Arsenic	6.97		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Barium	228		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Cadmium	2.39		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Chromium	50.1		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Cobalt	8.65		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Copper	39.5		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Lead	27.2		1	mg/kg	0.500	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Nickel	20.4		1	mg/kg	2.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Selenium	2.18		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Thallium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Vanadium	34.9		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Zinc	117		1	mg/kg	5.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	0.161		1	mg/kg	0.100	EPA 7471A	EPA 7471A	07/02/07	07/03/07	ds	BG70210
Sample ID: AL2 Soil (7060278-02) Sampled:06/29/07 09:06 Received:06/29/07 10:10											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
pH	12.0		1	pH Units	0.1	EPA 9045C	EPA 9045C	07/02/07	07/02/07	ge	BG70218
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Antimony	5.52		1	mg/kg	2.50	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Arsenic	10.0		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Barium	159		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Beryllium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Cadmium	2.37		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Chromium	29.8		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Cobalt	10.4		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Copper	35.4		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Lead	34.7		1	mg/kg	0.500	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Molybdenum	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Nickel	17.2		1	mg/kg	2.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Selenium	1.66		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Silver	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Thallium	ND		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Vanadium	44.0		1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Zinc	103		1	mg/kg	5.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
Mercury	0.340		1	mg/kg	0.100	EPA 7471A	EPA 7471A	07/02/07	07/03/07	ds	BG70210
Sample ID: AL3 Soil (7060278-03) Sampled:06/29/07 09:10 Received:06/29/07 10:10											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch
pH	10.5		1	pH Units	0.1	EPA 9045C	EPA 9045C	07/02/07	07/02/07	ge	BG70218
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method		Prepared	Analyzed	By	Batch

DICE 01767



781 East Washington Blvd., Los Angeles, CA 90021  
(213) 745-5312 FAX (213) 745-6372

## Certificate of Analysis

Page 3 of 7

Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

Attn: Mr. Oscar Perez

Phone: (310) 764-5851 FAX:(310) 764-5863

File #:73972

Report Date: 07/06/07

Submitted: 06/29/07

PLS Report No.: 7060278

Project: Air Liquide

Sample ID: AL3 Soil (7060278-03) Sampled:06/29/07 09:10 Received:06/29/07 10:10											
Antimony	6.30	1	mg/kg	2.50	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Arsenic	11.0	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Barium	163	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Beryllium	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Cadmium	2.63	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Chromium	32.8	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Cobalt	12.1	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Copper	30.6	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Lead	35.0	1	mg/kg	0.500	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Molybdenum	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Nickel	19.0	1	mg/kg	2.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Selenium	1.60	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Silver	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Thallium	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Vanadium	50.2	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Zinc	80.4	1	mg/kg	5.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Mercury	0.423	1	mg/kg	0.100	EPA 7471A	EPA 7471A	07/02/07	07/03/07	ds	BG70210	
Sample ID: AL4 Soil (7060278-04) Sampled:06/29/07 09:14 Received:06/29/07 10:10											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
pH	12.2	1	pH Units	0.1	EPA 9045C	EPA 9045C	07/02/07	07/02/07	ge	BG70218	
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Antimony	5.76	1	mg/kg	2.50	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Arsenic	9.87	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Barium	156	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Beryllium	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Cadmium	2.30	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Chromium	34.9	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Cobalt	10.3	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Copper	40.5	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Lead	44.2	1	mg/kg	0.500	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Molybdenum	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Nickel	17.8	1	mg/kg	2.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Selenium	1.36	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Silver	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Thallium	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Vanadium	41.6	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Zinc	93.2	1	mg/kg	5.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Mercury	0.321	1	mg/kg	0.100	EPA 7471A	EPA 7471A	07/02/07	07/03/07	ds	BG70210	
Sample ID: AL5 Soil (7060278-05) Sampled:06/29/07 09:20 Received:06/29/07 10:10											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
pH	11.5	1	pH Units	0.1	EPA 9045C	EPA 9045C	07/02/07	07/02/07	ge	BG70218	
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Antimony	4.96	1	mg/kg	2.50	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Arsenic	7.40	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	
Barium	134	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208	

DICE 01768



781 East Washington Blvd., Los Angeles, CA 90021  
(213) 745-5312 FAX (213) 745-6372

## Certificate of Analysis

Page 4 of 7

Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

File #: 73972  
Report Date: 07/06/07  
Submitted: 06/29/07  
PLS Report No.: 7060278

Attn: Mr. Oscar Perez

Phone: (310) 764-5851 FAX: (310) 764-5863

Project: Air Liquide

Sample ID: AL5 Soil (7060278-05) Sampled: 06/29/07 09:20 Received: 06/29/07 10:10										
Beryllium	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Cadmium	2.17	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Chromium	64.6	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Cobalt	9.80	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Copper	29.8	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Lead	26.1	1	mg/kg	0.500	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Molybdenum	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Nickel	14.2	1	mg/kg	2.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Selenium	1.33	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Silver	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Thallium	ND	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Vanadium	40.9	1	mg/kg	1.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Zinc	67.5	1	mg/kg	5.00	EPA 3050B	EPA 6010B	07/02/07	07/02/07	cj	BG70208
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Mercury	0.417		1	mg/kg	0.100	EPA 7471A	EPA 7471A	07/02/07	07/03/07	ds BG70210



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## Certificate of Analysis

Page 5 of 7

Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

File #: 73972  
Report Date: 07/06/07  
Submitted: 06/29/07  
PLS Report No.: 7060278

Attn: Mr. Oscar Perez

Phone: (310) 764-5851 FAX: (310) 764-5863

Project: Air Liquide

### Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>Batch BG70218 - EPA 9045C</b>										
<b>Duplicate Source: 7060278-01 Prepared &amp; Analyzed: 07/02/07</b>										
pH	12.3	0.1	pH Units		12.3			0.00	20	
<b>Batch BG70208 - EPA 3050B</b>										
<b>Blank Prepared &amp; Analyzed: 07/02/07</b>										
Antimony	ND	2.50	mg/kg							
Arsenic	ND	1.00	mg/kg							
Barium	ND	1.00	mg/kg							
Beryllium	ND	1.00	mg/kg							
Cadmium	ND	1.00	mg/kg							
Chromium	ND	1.00	mg/kg							
Cobalt	ND	1.00	mg/kg							
Copper	ND	1.00	mg/kg							
Lead	ND	0.500	mg/kg							
Molybdenum	ND	1.00	mg/kg							
Nickel	ND	2.00	mg/kg							
Selenium	ND	1.00	mg/kg							
Silver	ND	1.00	mg/kg							
Thallium	ND	1.00	mg/kg							
Vanadium	ND	1.00	mg/kg							
Zinc	ND	5.00	mg/kg							
<b>LCS Prepared &amp; Analyzed: 07/02/07</b>										
Antimony	40.8	2.50	mg/kg	50.30		81.1	60-140			
Arsenic	171	1.00	mg/kg	200.4		85.5	80-120			
Barium	175	1.00	mg/kg	199.5		87.8	80-120			
Beryllium	4.16	1.00	mg/kg	5.020		82.9	80-120			
Cadmium	4.19	1.00	mg/kg	5.010		83.7	80-120			
Chromium	18.6	1.00	mg/kg	20.02		93.0	80-120			
Cobalt	42.6	1.00	mg/kg	50.20		84.8	80-120			
Copper	21.5	1.00	mg/kg	24.95		86.1	80-120			
Lead	41.6	0.500	mg/kg	50.20		82.8	80-120			
Molybdenum	42.3	1.00	mg/kg	50.00		84.7	80-120			
Nickel	43.8	2.00	mg/kg	50.10		87.5	80-120			
Selenium	160	1.00	mg/kg	201.6		79.4	80-120			
Silver	4.18	1.00	mg/kg	5.020		83.2	80-120			
Thallium	166	1.00	mg/kg	202.0		82.4	80-120			
Vanadium	40.8	1.00	mg/kg	50.30		81.1	80-120			
Zinc	47.5	5.00	mg/kg	50.10		94.7	80-120			
<b>Matrix Spike Source: 7060275-12 Prepared &amp; Analyzed: 07/02/07</b>										
Antimony	47.4	2.50	mg/kg	50.30	2.45	89.3	60-140			

DICE 01770



781 East Washington Blvd., Los Angeles, CA 90021  
(213) 745-5312 FAX (213) 745-6372

## Certificate of Analysis

Page 6 of 7

Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

File #: 73972  
Report Date: 07/06/07  
Submitted: 06/29/07  
PLS Report No.: 7060278

Attn: Mr. Oscar Perez

Phone: (310) 764-5851 FAX: (310) 764-5863

Project: Air Liquide

### Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>Batch BG70208 - EPA 3050B</b>										
Arsenic	191	1.00	mg/kg	200.4	1.45	94.3	75-125			
Barium	259	1.00	mg/kg	199.5	76.3	91.4	75-125			
Beryllium	3.68	1.00	mg/kg	5.020	ND	73.3	75-125			
Cadmium	5.61	1.00	mg/kg	5.010	1.25	87.0	75-125			
Chromium	25.1	1.00	mg/kg	20.02	7.03	90.2	75-125			
Cobalt	49.9	1.00	mg/kg	50.20	5.65	88.2	75-125			
Copper	28.6	1.00	mg/kg	24.95	5.78	91.3	75-125			
Lead	44.8	0.500	mg/kg	50.20	1.62	86.1	75-125			
Molybdenum	44.7	1.00	mg/kg	50.00	ND	89.4	75-125			
Nickel	51.8	2.00	mg/kg	50.10	7.68	88.1	75-125			
Selenium	177	1.00	mg/kg	201.6	0.337	87.5	75-125			
Silver	4.50	1.00	mg/kg	5.020	ND	89.7	75-125			
Thallium	167	1.00	mg/kg	202.0	ND	82.6	75-125			
Vanadium	67.0	1.00	mg/kg	50.30	23.8	85.8	75-125			
Zinc	73.8	5.00	mg/kg	50.10	31.8	83.8	75-125			
<b>Matrix Spike Dup Source: 7060275-12 Prepared &amp; Analyzed: 07/02/07</b>										
Antimony	47.1	2.50	mg/kg	50.30	2.45	88.8	60-140	0.528	30	
Arsenic	193	1.00	mg/kg	200.4	1.45	95.5	75-125	1.18	30	
Barium	260	1.00	mg/kg	199.5	76.3	92.0	75-125	0.618	30	
Beryllium	3.71	1.00	mg/kg	5.020	ND	73.9	75-125	0.787	30	
Cadmium	5.69	1.00	mg/kg	5.010	1.25	88.7	75-125	1.97	30	
Chromium	26.0	1.00	mg/kg	20.02	7.03	94.5	75-125	4.72	30	
Cobalt	50.5	1.00	mg/kg	50.20	5.65	89.4	75-125	1.36	30	
Copper	29.4	1.00	mg/kg	24.95	5.78	94.8	75-125	3.72	30	
Lead	45.3	0.500	mg/kg	50.20	1.62	87.0	75-125	1.05	30	
Molybdenum	45.2	1.00	mg/kg	50.00	ND	90.5	75-125	1.23	30	
Nickel	52.1	2.00	mg/kg	50.10	7.68	88.7	75-125	0.599	30	
Selenium	179	1.00	mg/kg	201.6	0.337	88.6	75-125	1.19	30	
Silver	4.51	1.00	mg/kg	5.020	ND	89.9	75-125	0.162	30	
Thallium	169	1.00	mg/kg	202.0	ND	83.5	75-125	1.08	30	
Vanadium	68.8	1.00	mg/kg	50.30	23.8	89.4	75-125	4.13	30	
Zinc	75.1	5.00	mg/kg	50.10	31.8	86.4	75-125	3.03	30	
<b>Batch BG70210 - EPA 7471A</b>										
<b>Blank Prepared: 07/02/07 Analyzed: 07/03/07</b>										
Mercury	ND	0.100	mg/kg							
<b>LCS Prepared: 07/02/07 Analyzed: 07/03/07</b>										
Mercury	0.871	0.100	mg/kg	0.8333		105	80-120			
<b>Matrix Spike Source: 7060275-12 Prepared: 07/02/07 Analyzed: 07/03/07</b>										
Mercury	0.869	0.100	mg/kg	0.8333	0.0259	101	70-130			

DICE 01771



781 East Washington Blvd., Los Angeles, CA 90021  
(213) 745-5312 FAX (213) 745-6372

## Certificate of Analysis

Page 7 of 7

Clean Harbors Environmental Service  
2500 E. Victoria Street  
Compton, CA 90220

Attn: Mr. Oscar Perez

Phone: (310) 764-5851 FAX:(310) 764-5863

**Project:** Air Liquide

File #:73972

Report Date: 07/06/07

Submitted: 06/29/07

**PLS Report No.: 7060278**

### Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>Batch BG70210 - EPA 7471A</b>										
<b>Matrix Spike Dup Source: 7060275-12 Prepared: 07/02/07 Analyzed: 07/03/07</b>										
Mercury	0.916	0.100	mg/kg	0.8333	0.0259	107	70-130	5.42	30	

### Notes and Definitions

NA Not Applicable

ND Analyte NOT DETECTED at or above the detection limit

NR Not Reported

MDL Method Detection Limit

PQL (RL) Practical Quantitation Limit (RL)

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

\_\_\_\_\_  
Authorized Signature(s)

DICE 01772





## CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021  
 (213) 745-5312 FAX (213) 745-6372

 DATE: 6/29/07 PAGE 1 OF 1  
 LOG BOOK NO. \_\_\_\_\_ FILE NO. \_\_\_\_\_ LAB NO. 706.0278
CLIENT NAME: Clean HarborsProject Name/No. Air Liginda

P.O. NO. \_\_\_\_\_

AIRBILL NO: \_\_\_\_\_

ADDRESS: 2500 East Victoria Rancho Dominguez

ANALYSES REQUESTED:

COOLER TEMP: 2 °CPROJECT MANAGER: Oscar PerezPHONE NO: 455-2144 FAX NO: \_\_\_\_\_

PRESERVED: \_\_\_\_\_

SAMPLER NAME: Mike Gipson (Printed)(Signature) Mike Gipson

REMARKS:

TAT (Analytical Turn Around Time) 0 = Same day; 1 = 24 Hour; 2 = 48 Hour; (Etc.) N = NORMAL

CONTAINER TYPES: B = Brass, E = Encore G = Glass, P = Plastic, V = VOA Vial, O = Other:

UST Project Y N - Global ID# \_\_\_\_\_

SAMPLE ID	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER	
				WATER	SOL	SLUDGE	OTHER		#	TYPE
1	AL1	6/29	900a		X			N	4oz	G
2	AL2	6/29	906a		X				4oz	G
3	AL3	6/29	910a		X				4oz	G
4	AL4	6/29	914a		X				4oz	G
5	AL5	6/29	920a		X				4oz	G
6										
7										
8										
9										
10										

 PH  
 CAM17
SAMPLE CONDITION/  
CONTAINER/COMMENTS:

DICE 01773

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date 6/29/07 Time 10:10

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date 6/29/07 Time 12:00

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date \_\_\_\_\_ Time \_\_\_\_\_

## SAMPLE DISPOSITION:

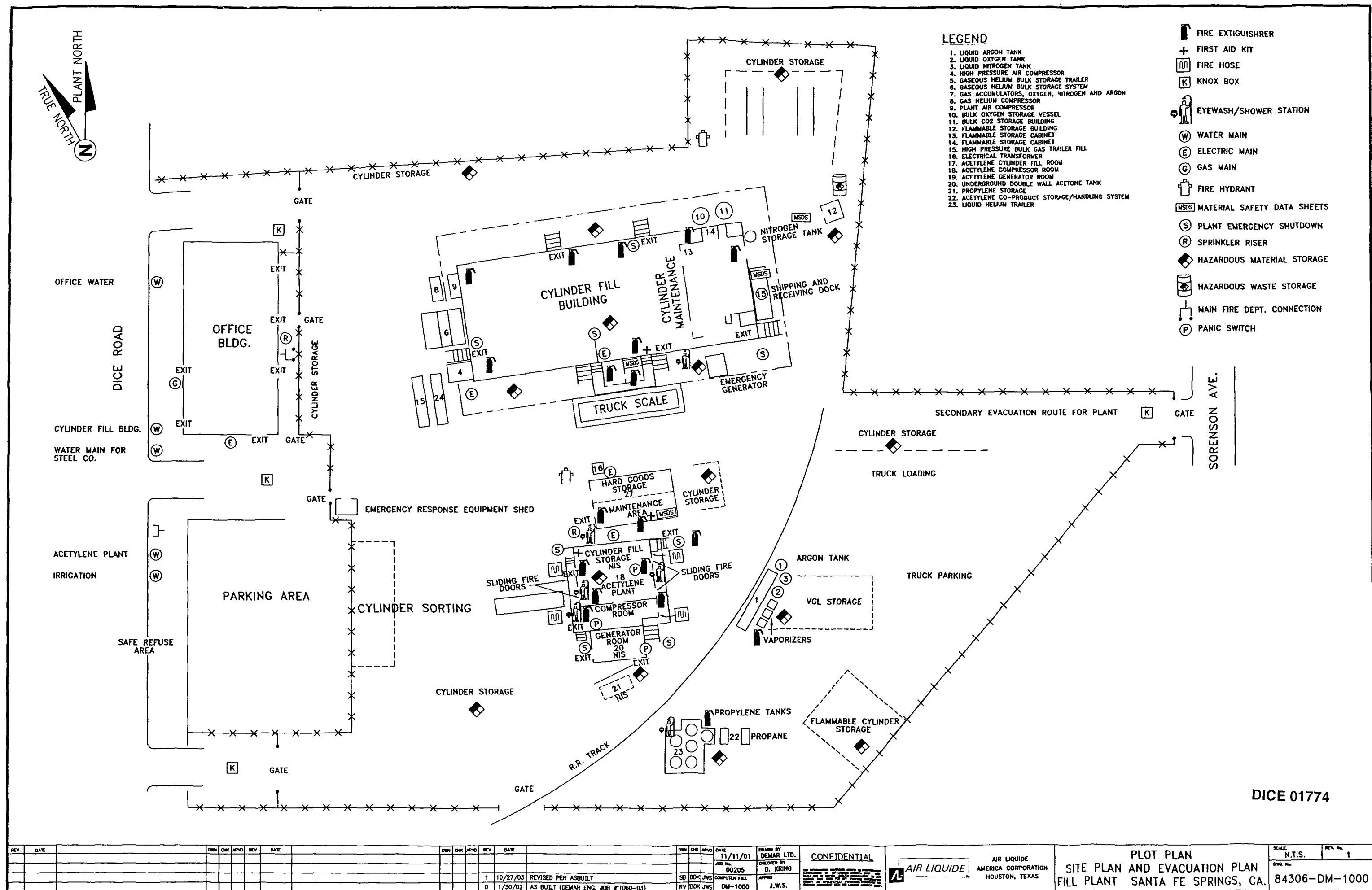
1. Samples returned to client? YES NO


2. Samples will not be stored over 30 days, unless additional storage time is requested.

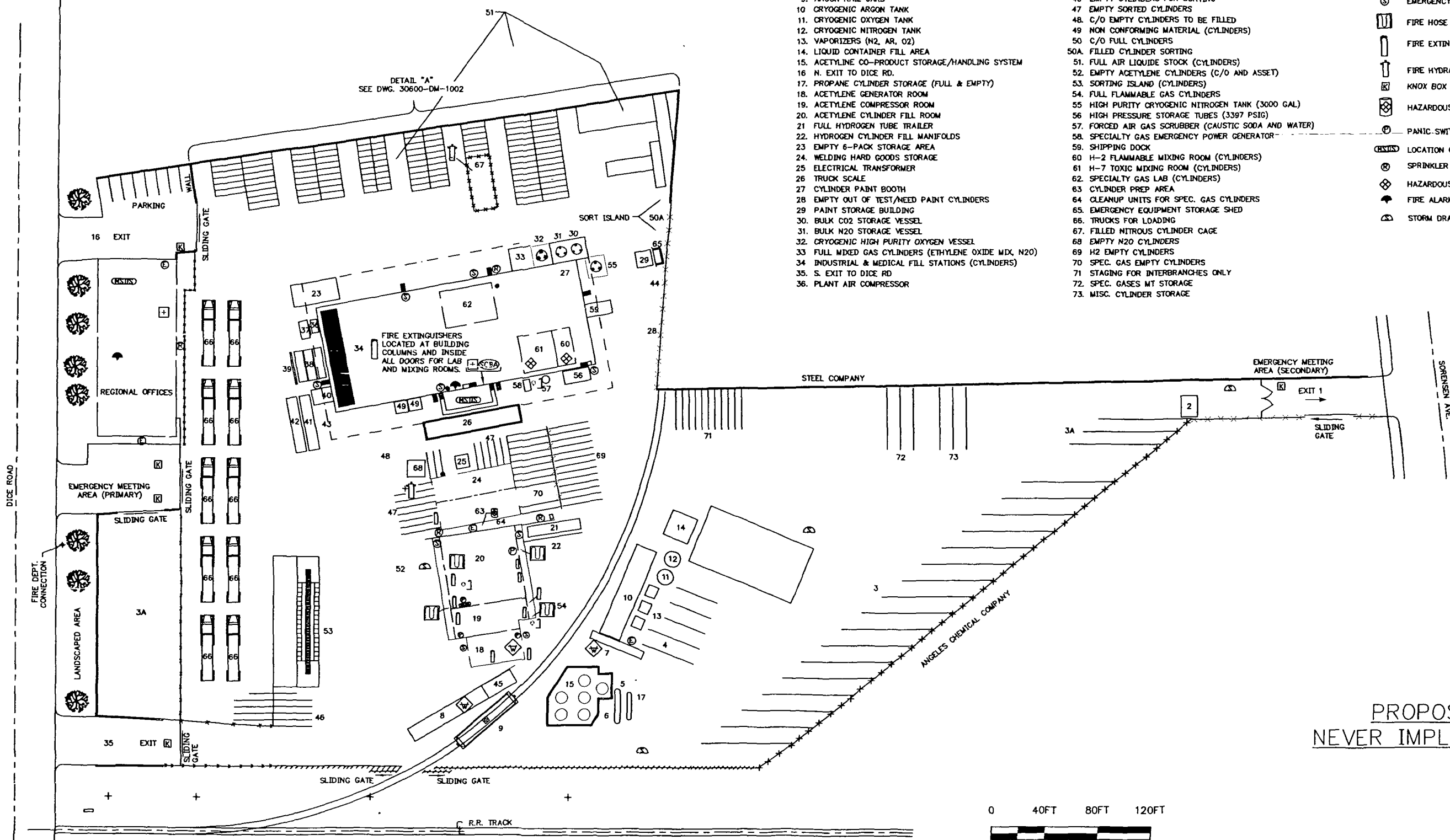
3. Storage time requested: \_\_\_\_\_ days

















By \_\_\_\_\_ Date \_\_\_\_\_

SPECIAL INSTRUCTIONS:

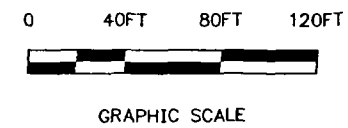


REV	DATE	DWN	CHK	APPRO	REV	DATE	DWN	CHK	APPRO	REV	DATE	DWN	CHK	APPRO	DATE	DRAWN BY	<b>CONFIDENTIAL</b> <small>NO INFORMATION CONTAINED HEREIN IS TO BE RELEASED OR DISCLOSED IN ANY MANNER TO THE PUBLIC OR TO ANY OTHER AGENCY, COMPANY, OR INDIVIDUAL WITHOUT THE WRITTEN AUTHORIZATION OF THE U.S. GOVERNMENT. IT IS THE POLICY OF THE U.S. GOVERNMENT TO MAKE AVAILABLE TO THE PUBLIC INFORMATION THAT IS NOT PROTECTED BY PATENT, COPYRIGHT, OR OTHER LAWS. INFORMATION THAT IS NOT SO PROTECTED WILL BE RELEASED TO THE PUBLIC AS SOON AS IT IS PRACTICALLY FEASIBLE TO DO SO.</small>	 <b>AIR LIQUIDE</b> AMERICA CORPORATION HOUSTON, TEXAS	<b>PLOT PLAN</b> <b>SITE PLAN AND EVACUATION PLAN</b> <b>FILL PLANT SANTA FE SPRINGS, CA.</b>	SCALE	REV. No.
															11/11/01	DEMAR LTD.				N.T.S.	1
															JOB No. 00205	CHECKED BY D. KRING					
																SE DOK JWS	COMPUTER FILE				
																RV DOK JWS	DM-1000				
																1	10/27/03	REVISED PER ASBUILT			
																0	1/30/02	AS BUILT (DEMARC ENG. JOB #11060-03)			




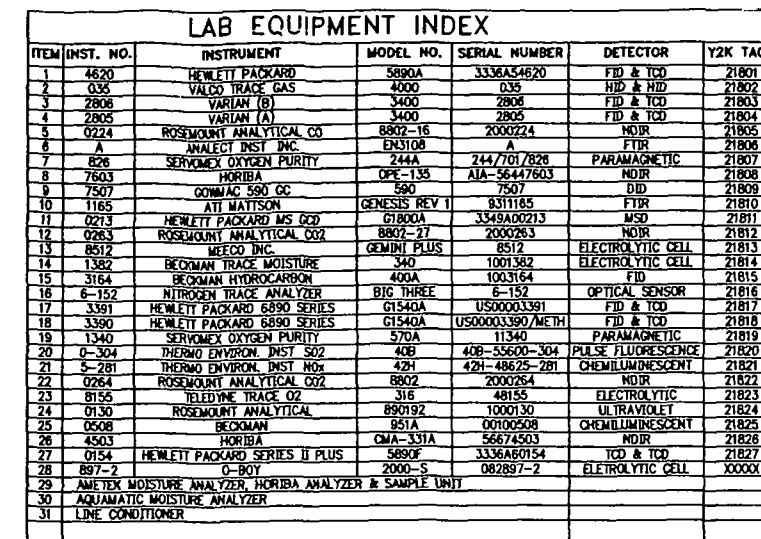
- |  |  |   |                                       |
|--|--|---|---------------------------------------|
| 1. EXIT TO SORENSON                                    | 37. GAS HELIUM COMPRESSOR                            |  | FIRST AID STATION                     |
| 2. TRUCK WASH  | 38. GAS HELIUM STORAGE TUBES                         |  | HAZARDOUS MATERIAL (WATER REACTIVE)   |
| 3. BULK LIQUID OXYGEN AND NITROGEN TRAILER PARKING     | 39. HIGH PRESSURE AIR STORAGE TUBES                  |  | ELECTRICAL MAIN SHUT-OFF              |
| 3A. EMPLOYEE PARKING LOT                               | 40. CLEAN AIR COMPRESSOR                             |  | EYE-WASH/SAFETY SHOWER                |
| 4. TUBE TRAILER FILLING (N2, AR)                       | 41. LIQUID HELIUM BULK TRAILER                       |  | EMERGENCY SHUTDOWN                    |
| 5. PROPYLENE PROPANE TANK                              | 42. GASEOUS HELIUM TUBE TRAILER                      |  | FIRE HOSE                             |
| 6. PROPYLENE CYLINDER STORAGE (FULL & EMPTY)           | 43. AIR TUBE TRAILER                                 |  | FIRE EXTINGUISHER                     |
| 7. EMPTY CARBIDE STORAGE                               | 44. HAZARDOUS WASTE STORAGE (DRUMS)                  |  | FIRE HYDRANT                          |
| 8. FULL CARBIDE STORAGE                                | 45. UNDERGROUND ACETONE TANK                         |  | KNOX BOX                              |
| 9. ARGON RAIL CARS                                     | 46. EMPTY CYLINDERS FOR SORTING                      |  | HAZARDOUS MATERIAL LIQUID CONTAINER   |
| 10. CRYOGENIC ARGON TANK                               | 47. EMPTY SORTED CYLINDERS                           |  | PANIC SWITCH                          |
| 11. CRYOGENIC OXYGEN TANK                              | 48. C/O EMPTY CYLINDERS TO BE FILLED                 |  | LOCATION OF MSDS SHEETS               |
| 12. CRYOGENIC NITROGEN TANK                            | 49. NON CONFORMING MATERIAL (CYLINDERS)              |  | SPRINKLER RISER                       |
| 13. VAPORIZERS (N2, AR, O2)                            | 50. C/O FULL CYLINDERS                               |  | HAZARDOUS MATERIALS STORAGE AND USAGE |
| 14. LIQUID CONTAINER FILL AREA                         | 50A. FILLED CYLINDER SORTING                         |  | FIRE ALARM SHUTOFF PANELS             |
| 15. ACETYLENE CO-PRODUCT STORAGE/HANDLING SYSTEM       | 51. FULL AIR LIQUIDE STOCK (CYLINDERS)               |  | STORM DRAINS                          |
| 16. N. EXIT TO DICE RD.                                | 52. EMPTY ACETYLENE CYLINDERS (C/O AND ASSET)        |   |                                       |
| 17. PROPANE CYLINDER STORAGE (FULL & EMPTY)            | 53. SORTING ISLAND (CYLINDERS)                       |   |                                       |
| 18. ACETYLENE GENERATOR ROOM                           | 54. FULL FLAMMABLE GAS CYLINDERS                     |   |                                       |
| 19. ACETYLENE COMPRESSOR ROOM                          | 55. HIGH PURITY CRYOGENIC NITROGEN TANK (3000 GAL)   |   |                                       |
| 20. ACETYLENE CYLINDER FILL ROOM                       | 56. HIGH PRESSURE STORAGE TUBES (3397 PSIG)          |   |                                       |
| 21. FULL HYDROGEN TUBE TRAILER                         | 57. FORCED AIR GAS SCRUBBER (CAUSTIC SODA AND WATER) |   |                                       |
| 22. HYDROGEN CYLINDER FILL MANIFOLDS                   | 58. SPECIALTY GAS EMERGENCY POWER GENERATOR          |   |                                       |
| 23. EMPTY 6-PACK STORAGE AREA                          | 59. SHIPPING DOCK                                    |   |                                       |
| 24. WELDING HARD GOODS STORAGE                         | 60. H-2 FLAMMABLE MIXING ROOM (CYLINDERS)            |   |                                       |
| 25. ELECTRICAL TRANSFORMER                             | 61. H-7 TOXIC MIXING ROOM (CYLINDERS)                |   |                                       |
| 26. TRUCK SCALE  | 62. SPECIALTY GAS LAB (CYLINDERS)                    |   |                                       |
| 27. CYLINDER PAINT BOOTH                               | 63. CYLINDER PREP AREA                               |   |                                       |
| 28. EMPTY OUT OF TEST/NEED PAINT CYLINDERS             | 64. CLEANUP UNITS FOR SPEC. GAS CYLINDERS            |   |                                       |
| 29. PAINT STORAGE BUILDING                             | 65. EMERGENCY EQUIPMENT STORAGE SHED                 |   |                                       |
| 30. BULK CO2 STORAGE VESSEL                            | 66. TRUCKS FOR LOADING                               |   |                                       |
| 31. BULK N2O STORAGE VESSEL                            | 67. FILLED NITROUS CYLINDER CAGE                     |   |                                       |
| 32. CRYOGENIC HIGH PURITY OXYGEN VESSEL                | 68. EMPTY N2O CYLINDERS                              |   |                                       |
| 33. FULL MIXED GAS CYLINDERS (ETHYLENE OXIDE MIX, N2O) | 69. H2 EMPTY CYLINDERS                               |   |                                       |
| 34. INDUSTRIAL & MEDICAL FILL STATIONS (CYLINDERS)     | 70. SPEC. GAS EMPTY CYLINDERS                        |   |                                       |
| 35. S. EXIT TO DICE RD                                 | 71. STAGING FOR INTERBRANCHES ONLY                   |   |                                       |
| 36. PLANT AIR COMPRESSOR                               | 72. SPEC. GASES MT STORAGE                           |   |                                       |
|  | 73. MISC. CYLINDER STORAGE                           |   |                                       |

PROPOSED  
NEVER IMPLEMENTED



**DICE 01775**

REV	DATE		REV	DATE		REV	DATE		DATE 2/28/97	DRAWN BY DUNCAN	 <b>AIR LIQUIDE</b> AIR LIQUIDE AMERICA CORP. HOUSTON, TEXAS	PLOT PLAN (PROPOSED) AIR LIQUIDE COMPRESSED GAS DIVISION SANTA FE SPRINGS,CALIFORNIA	SCALE 1"=40'-0"	REV. No. 0
JOB No.									CHECKED BY				DWG. No.	30600-DM-1000
COMPUTER FILE									APP'D					
0	3/2/00	REDRAWN - OLD DWG# SFS_LAND							DM1000					



REV	DATE	DSN	CHK	APND	REV	DATE	DSN	CHK	APND	REV	DATE	DSN	CHK	APND	DATE	DRAWN BY	CONFIDENTIAL	AIR LIQUIDE	AIR LIQUIDE AMERICA CORPORATION HOUSTON, TEXAS	EQUIPMENT LOCATION PLAN	SCALE	REV. No.
															11/15/01	DEMAR LTD.				N.T.S.	0	
															JOB No.	CHECKED BY				DWG. No.		
															30600	D. KRING						
															COMPUTER FILE	APPRO						
															DM-1001	J.W.S.						
															0	1/30/02	AS BUILT (DEMAR ENG. JOB #11060-03)					
															RV	DDK	JWS					

*Office of the Secretary of State*

---

I, WILLIAM T. QUILLEN, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF OWNERSHIP OF AL AMERICA HOLDINGS, INC., A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, MERGING LIQUID AIR CORPORATION A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, PURSUANT TO SECTION 253 OF THE GENERAL CORPORATION LAW OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE TENTH DAY OF JANUARY, A.D. 1994, AT 1 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE AFORESAID CORPORATION SHALL BE GOVERNED BY THE LAWS OF THE STATE OF DELAWARE.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE APPROPRIATE COUNTY RECORDER OF DEEDS FOR RECORDING.

\* \* \* \* \*

DICE 01777



*William T. Quillen*

William T. Quillen, Secretary of State

AUTHENTICATION:

\*4235404

DATE:

01/10/1994

734010022

**CERTIFICATE OF OWNERSHIP AND MERGER  
MERGING  
LIQUID AIR CORPORATION  
INTO  
AL AMERICA HOLDINGS, INC.**

(Pursuant to Section 253 of the General  
Corporation Law of the State of Delaware)

AL America Holdings, Inc., a corporation organized and existing under the laws of the State of Delaware (the "Corporation"), **DOES HEREBY CERTIFY:**

**FIRST:** That the Corporation was incorporated on the 2nd day of July, 1987, pursuant to the General Corporation Law of the State of Delaware.

**SECOND:** That the Corporation owns all of the outstanding shares of each class of stock of Liquid Air Corporation, a corporation incorporated on the 9th day of January, 1970, pursuant to the General Corporation Law of the State of Delaware.

**THIRD:** That the Corporation, by the following resolutions of its Board of Directors, duly adopted by the unanimous written consent of the directors dated December 2, 1993 and filed with the minutes of the Board of Directors, determined to merge into itself its wholly-owned subsidiary, Liquid Air Corporation, on the conditions set forth in such resolutions:

RESOLVED, that Liquid Air Corporation, a Delaware corporation, all of the issued and outstanding capital stock of which is owned by this Corporation, be merged into this Corporation, in accordance with the applicable provisions of the laws of the State of Delaware, and that this Corporation assume all of the liabilities and obligations of said Liquid Air Corporation upon such merger; and further

RESOLVED, that the merger shall not involve the issuance of any additional shares of capital stock of the Corporation and that there shall be no change in the Certificate of Incorporation of the Corporation as the surviving corporation as a result of the merger; and further

RESOLVED, that the merger shall become effective upon the filing of a Certificate of Ownership and Merger with the Secretary of State of the State of Delaware, but shall, for accounting and all other purposes, be deemed to have become effective as of 12:01 a.m. on January 1, 1994; and further

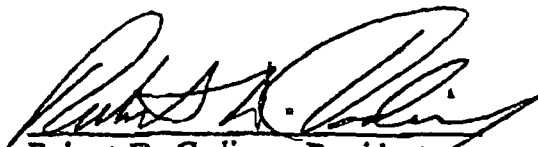
-2-

RESOLVED, that the proper officers of the Corporation be, and they hereby are, authorized and directed to make, execute and file such agreements, certificates, consents and other papers as may, in their judgment, be necessary or desirable in order to effectuate the merger, and that, in furtherance of this authorization, the President or any Vice President and the Secretary or any Assistant Secretary are hereby authorized to make, execute and file a Certificate of Ownership and Merger as required by the laws of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this certificate to be signed by Robert D. Cadieux, its President, and attested by John N. Baird, its Secretary, this 27 day of December, 1993.

AL AMERICA HOLDINGS, INC.

By:

  
Robert D. Cadieux, President

ATTEST:

By:

  
John N. Baird, Secretary

DICE 01779